

S-3

DERIVATION OF 95% UCL CALCULATIONS

MAIN SITE SURFACE SOIL

General Statistics

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| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCLASS-MainSt-InputFile.xls | | |
| Variable: | 1,1,1-Trichloroethane | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 174 | Lilliefors Test Statistic | 0.484477 |
| Number of Unique Samples | 54 | Lilliefors 5% Critical Value | 0.067167 |
| Minimum | 0.0006 | Data not normal at 5% significance level | |
| Maximum | 340 | | |
| Mean | 2.198865 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.003 | Student's-t UCL | 5.43335 |
| Standard Deviation | 25.80006 | | |
| Variance | 665.6432 | Gamma Distribution Test | |
| Coefficient of Variation | 11.73335 | A-D Test Statistic | 44.79121 |
| Skewness | 13.12553 | A-D 5% Critical Value | 1.016589 |
| | | K-S Test Statistic | 0.358755 |
| Gamma Statistics | | K-S 5% Critical Value | 0.08075 |
| k hat | 0.138626 | Data do not follow gamma distribution at 5% significance level | |
| k star (bias corrected) | 0.140068 | | |
| Theta hat | 15.86182 | | |
| Theta star | 15.6986 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 48.24194 | Approximate Gamma UCL | 3.179109 |
| nu star | 48.74352 | Adjusted Gamma UCL | 3.188953 |
| Approx. Chi Square Value (.05) | 33.71398 | | |
| Adjusted Level of Significance | 0.048621 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 33.60991 | Lilliefors Test Statistic | 0.306986 |
| | | Lilliefors 5% Critical Value | 0.067167 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -7.418581 | | |
| Maximum of log data | 5.828946 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -4.819464 | 95% H-UCL | 0.153677 |
| Standard Deviation of log data | 2.183692 | 95% Chebyshev (MVUE) UCL | 0.187437 |
| Variance of log data | 4.768511 | 97.5% Chebyshev (MVUE) UCL | 0.232303 |
| | | 99% Chebyshev (MVUE) UCL | 0.320434 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 5.41603 |
| | | Adj-CLT UCL (Adjusted for skewness) | 7.495577 |
| | | Mod-t UCL (Adjusted for skewness) | 5.757717 |
| | | Jackknife UCL | 5.43335 |
| | | Standard Bootstrap UCL | 5.386175 |
| | | Bootstrap-t UCL | 96.78406 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 65.29702 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 6.083032 |
| | | BCA Bootstrap UCL | 8.277665 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 10.72442 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 14.41344 |
| | | 99% Chebyshev (Mean, Sd) UCL | 21.6598 |

General Statistics

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| Data File | P:\W9-GVTARMYSAEPIHH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | 1,1,2,2-Tetrachloroethane | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 167 | Lilliefors Test Statistic | 0.438301 |
| Number of Unique Samples | 25 | Lilliefors 5% Critical Value | 0.068561 |
| Minimum | 0.002 | Data not normal at 5% significance level | |
| Maximum | 3.65 | | |
| Mean | 0.085614 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.135449 |
| Standard Deviation | 0.389351 | | |
| Variance | 0.151594 | Gamma Distribution Test | |
| Coefficient of Variation | 4.547761 | A-D Test Statistic | 46.29552 |
| Skewness | 7.128627 | A-D 5% Critical Value | 0.891493 |
| | | K-S Test Statistic | 0.500401 |
| Gamma Statistics | | K-S 5% Critical Value | 0.079156 |
| k hat | 0.249171 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.248687 | at 5% significance level | |
| Theta hat | 0.343594 | | |
| Theta star | 0.344263 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 83.22315 | Approximate Gamma UCL | 0.11278 |
| nu star | 83.06146 | Adjusted Gamma UCL | 0.113051 |
| Approx. Chi Square Value (.05) | 63.05367 | | |
| Adjusted Level of Significance | 0.048563 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 62.90276 | Lilliefors Test Statistic | 0.454129 |
| | | Lilliefors 5% Critical Value | 0.068561 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -6.214608 | | |
| Maximum of log data | 1.294727 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.310046 | 95% H-UCL | 0.03019 |
| Standard Deviation of log data | 1.694826 | 95% Chebyshev (MVUE) UCL | 0.037799 |
| Variance of log data | 2.872436 | 97.5% Chebyshev (MVUE) UCL | 0.045345 |
| | | 99% Chebyshev (MVUE) UCL | 0.060169 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.135171 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.15293 |
| | | Mod-t UCL (Adjusted for skewness) | 0.138219 |
| | | Jackknife UCL | 0.135449 |
| | | Standard Bootstrap UCL | 0.136054 |
| | | Bootstrap-t UCL | 0.182903 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.32792 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.139012 |
| | | BCA Bootstrap UCL | 0.179383 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.216943 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.273769 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.385392 |

General Statistics

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|------------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMYSAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | 1,1,2-Trichloroethane | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 161 | Lilliefors Test Statistic | 0.474363 |
| Number of Unique Samples | 24 | Lilliefors 5% Critical Value | 0.069827 |
| Minimum | 0.0004 | Data not normal at 5% significance level | |
| Maximum | 0.78 | | |
| Mean | 0.028409 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.041471 |
| Standard Deviation | 0.100182 | | |
| Variance | 0.010036 | Gamma Distribution Test | |
| Coefficient of Variation | 3.526467 | A-D Test Statistic | 44.09047 |
| Skewness | 5.107868 | A-D 5% Critical Value | 0.859616 |
| | | K-S Test Statistic | 0.50239 |
| Gamma Statistics | | K-S 5% Critical Value | 0.07965 |
| k hat | 0.336812 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.334677 | at 5% significance level | |
| Theta hat | 0.084346 | | |
| Theta star | 0.084884 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 108.4535 | Approximate Gamma UCL | 0.036101 |
| nu star | 107.766 | Adjusted Gamma UCL | 0.036179 |
| Approx. Chi Square Value (.05) | 84.80268 | | |
| Adjusted Level of Significance | 0.048509 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 84.6199 | Lilliefors Test Statistic | 0.430683 |
| | | Lilliefors 5% Critical Value | 0.069827 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -7.824046 | | |
| Maximum of log data | -0.248461 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.570073 | 95% H-UCL | 0.013667 |
| Standard Deviation of log data | 1.40979 | 95% Chebyshev (MVUE) UCL | 0.016931 |
| Variance of log data | 1.987507 | 97.5% Chebyshev (MVUE) UCL | 0.019857 |
| | | 99% Chebyshev (MVUE) UCL | 0.025604 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.041396 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.044792 |
| | | Mod-t UCL (Adjusted for skewness) | 0.042001 |
| | | Jackknife UCL | 0.041471 |
| | | Standard Bootstrap UCL | 0.041345 |
| | | Bootstrap-t UCL | 0.048277 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.04449 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.042172 |
| | | BCA Bootstrap UCL | 0.04922 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.062824 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.077716 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.106968 |

General Statistics

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|------------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMYSAEP\HH 2004 REV\ProUCLASS-MainSt-InputFile.xls | | |
| Variable: | 1,1-Dichloroethane | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 172 | Lilliefors Test Statistic | 0.48943 |
| Number of Unique Samples | 37 | Lilliefors 5% Critical Value | 0.067557 |
| Minimum | 0.0007 | Data not normal at 5% significance level | |
| Maximum | 120 | | |
| Mean | 0.79129 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 1.946269 |
| Standard Deviation | 9.159077 | | |
| Variance | 83.88869 | Gamma Distribution Test | |
| Coefficient of Variation | 11.57487 | A-D Test Statistic | 46.78741 |
| Skewness | 13.04621 | A-D 5% Critical Value | 0.986836 |
| | | K-S Test Statistic | 0.420831 |
| Gamma Statistics | | K-S 5% Critical Value | 0.08052 |
| k hat | 0.155924 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.15708 | at 5% significance level | |
| Theta hat | 5.074847 | | |
| Theta star | 5.037488 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 53.63783 | Approximate Gamma UCL | 1.12098 |
| nu star | 54.03562 | Adjusted Gamma UCL | 1.124294 |
| Approx.Chi Square Value (.05) | 38.14328 | | |
| Adjusted Level of Significance | 0.048605 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 38.03086 | Lilliefors Test Statistic | 0.368163 |
| | | Lilliefors 5% Critical Value | 0.067557 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -7.26443 | | |
| Maximum of log data | 4.787492 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.135472 | 95% H-UCL | 0.061685 |
| Standard Deviation of log data | 1.942895 | 95% Chebyshev (MVUE) UCL | 0.076842 |
| Variance of log data | 3.774842 | 97.5% Chebyshev (MVUE) UCL | 0.093791 |
| | | 99% Chebyshev (MVUE) UCL | 0.127084 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 1.940012 |
| | | Adj-CLT UCL (Adjusted for skewness) | 2.682326 |
| | | Mod-t UCL (Adjusted for skewness) | 2.062055 |
| | | Jackknife UCL | 1.946269 |
| | | Standard Bootstrap UCL | 1.941079 |
| | | Bootstrap-t UCL | 34.60951 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 25.38179 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 2.17818 |
| | | BCA Bootstrap UCL | 3.539601 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 3.835428 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 5.152628 |
| | | 99% Chebyshev (Mean, Sd) UCL | 7.740014 |

General Statistics

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|------------------------------------|----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCLASS-MainSt-InputFile.xls | | |
| Variable: | 1,1-Dichloroethene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 166 | Lilliefors Test Statistic | 0.439975 |
| Number of Unique Samples | 31 | Lilliefors 5% Critical Value | 0.068767 |
| Minimum | 0.001 | Data not normal at 5% significance level | |
| Maximum | 12 | | |
| Mean | 0.155696 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.284529 |
| Standard Deviation | 1.003483 | | |
| Variance | 1.006979 | Gamma Distribution Test | |
| Coefficient of Variation | 6.445155 | A-D Test Statistic | 45.29214 |
| Skewness | 10.47371 | A-D 5% Critical Value | 0.90728 |
| | | K-S Test Statistic | 0.469824 |
| Gamma Statistics | | K-S 5% Critical Value | 0.079996 |
| k hat | 0.213989 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.214138 | at 5% significance level | |
| Theta hat | 0.727588 | | |
| Theta star | 0.727083 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 71.0443 | Approximate Gamma UCL | 0.210127 |
| nu star | 71.0937 | Adjusted Gamma UCL | 0.21068 |
| Approx. Chi Square Value (.05) | 52.67758 | | |
| Adjusted Level of Significance | 0.048554 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 52.53941 | Lilliefors Test Statistic | 0.428197 |
| | | Lilliefors 5% Critical Value | 0.068767 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -6.907755 | | |
| Maximum of log data | 2.484907 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.262615 | 95% H-UCL | 0.037477 |
| Standard Deviation of log data | 1.774305 | 95% Chebyshev (MVUE) UCL | 0.046897 |
| Variance of log data | 3.14816 | 97.5% Chebyshev (MVUE) UCL | 0.056623 |
| | | 99% Chebyshev (MVUE) UCL | 0.075727 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.283806 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.351458 |
| | | Mod-t UCL (Adjusted for skewness) | 0.295082 |
| | | Jackknife UCL | 0.284529 |
| | | Standard Bootstrap UCL | 0.282762 |
| | | Bootstrap-t UCL | 0.609899 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.68317 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.293852 |
| | | BCA Bootstrap UCL | 0.433377 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.49519 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.64209 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.930646 |

General Statistics

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|------------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCLASS-MainSt-InputFile.xls | | |
| Variable: | 1,2-Dichloroethane | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 104 | Lilliefors Test Statistic | 0.499353 |
| Number of Unique Samples | 13 | Lilliefors 5% Critical Value | 0.086879 |
| Minimum | 0.0008 | Data not normal at 5% significance level | |
| Maximum | 3.7 | | |
| Mean | 0.056959 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.117677 |
| Standard Deviation | 0.373068 | | |
| Variance | 0.13918 | Gamma Distribution Test | |
| Coefficient of Variation | 6.549803 | A-D Test Statistic | 37.07176 |
| Skewness | 9.281543 | A-D 5% Critical Value | 0.890262 |
| | | K-S Test Statistic | 0.549736 |
| Gamma Statistics | | K-S 5% Critical Value | 0.096959 |
| k hat | 0.24949 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.248703 | at 5% significance level | |
| Theta hat | 0.228301 | | |
| Theta star | 0.229023 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 51.89383 | Approximate Gamma UCL | 0.081376 |
| nu star | 51.73023 | Adjusted Gamma UCL | 0.081787 |
| Approx. Chi Square Value (.05) | 36.20826 | | |
| Adjusted Level of Significance | 0.047692 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 36.02615 | Lilliefors Test Statistic | 0.453447 |
| | | Lilliefors 5% Critical Value | 0.086879 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -7.130899 | | |
| Maximum of log data | 1.308333 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.71334 | 95% H-UCL | 0.009859 |
| Standard Deviation of log data | 1.257274 | 95% Chebyshev (MVUE) UCL | 0.012177 |
| Variance of log data | 1.580738 | 97.5% Chebyshev (MVUE) UCL | 0.014338 |
| | | 99% Chebyshev (MVUE) UCL | 0.018585 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.117131 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.152707 |
| | | Mod-t UCL (Adjusted for skewness) | 0.123226 |
| | | Jackknife UCL | 0.117677 |
| | | Standard Bootstrap UCL | 0.117923 |
| | | Bootstrap-t UCL | 0.326211 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.294948 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.129598 |
| | | BCA Bootstrap UCL | 0.18846 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.216417 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.285415 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.420948 |

General Statistics

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|------------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEPIHH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | 1,2-Dichloroethene (total) | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 68 | Lilliefors Test Statistic | 0.510476 |
| Number of Unique Samples | 10 | Lilliefors 5% Critical Value | 0.107443 |
| Minimum | 0.002 | Data not normal at 5% significance level | |
| Maximum | 1.05 | | |
| Mean | 0.03189 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.061883 |
| Standard Deviation | 0.148288 | | |
| Variance | 0.021989 | Gamma Distribution Test | |
| Coefficient of Variation | 4.650035 | A-D Test Statistic | 23.73494 |
| Skewness | 5.761907 | A-D 5% Critical Value | 0.8639 |
| | | K-S Test Statistic | 0.522391 |
| Gamma Statistics | | K-S 5% Critical Value | 0.117335 |
| k hat | 0.305395 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.301726 | at 5% significance level | |
| Theta hat | 0.104421 | | |
| Theta star | 0.105691 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 41.53371 | Approximate Gamma UCL | 0.047843 |
| nu star | 41.03468 | Adjusted Gamma UCL | 0.04827 |
| Approx. Chi Square Value (.05) | 27.35151 | | |
| Adjusted Level of Significance | 0.046471 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 27.10945 | Lilliefors Test Statistic | 0.435448 |
| | | Lilliefors 5% Critical Value | 0.107443 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -6.214608 | | |
| Maximum of log data | 0.04879 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.69686 | 95% H-UCL | 0.009344 |
| Standard Deviation of log data | 1.16504 | 95% Chebyshev (MVUE) UCL | 0.01149 |
| Variance of log data | 1.357319 | 97.5% Chebyshev (MVUE) UCL | 0.013646 |
| | | 99% Chebyshev (MVUE) UCL | 0.017879 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.061468 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.074894 |
| | | Mod-t UCL (Adjusted for skewness) | 0.063977 |
| | | Jackknife UCL | 0.061883 |
| | | Standard Bootstrap UCL | 0.061565 |
| | | Bootstrap-t UCL | 0.096742 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.065707 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.067353 |
| | | BCA Bootstrap UCL | 0.091743 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.110274 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.144191 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.210814 |

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General Statistics

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| Data File | P:\W9-GVT\ARMY\SAEPIHH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Benzene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 166 | Lilliefors Test Statistic | 0.437259 |
| Number of Unique Samples | 33 | Lilliefors 5% Critical Value | 0.068767 |
| Minimum | 0.0002 | Data not normal at 5% significance level | |
| Maximum | 3.8 | | |
| Mean | 0.093288 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.149719 |
| Standard Deviation | 0.439541 | | |
| Variance | 0.193197 | Gamma Distribution Test | |
| Coefficient of Variation | 4.711663 | A-D Test Statistic | 38.84171 |
| Skewness | 7.2059 | A-D 5% Critical Value | 0.901233 |
| | | K-S Test Statistic | 0.47328 |
| Gamma Statistics | | K-S 5% Critical Value | 0.079782 |
| k hat | 0.22745 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.227356 | at 5% significance level | |
| Theta hat | 0.410147 | | |
| Theta star | 0.410317 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 75.51345 | Approximate Gamma UCL | 0.124701 |
| nu star | 75.48208 | Adjusted Gamma UCL | 0.125018 |
| Approx. Chi Square Value (.05) | 56.46773 | | |
| Adjusted Level of Significance | 0.048554 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 56.32443 | Lilliefors Test Statistic | 0.387918 |
| | | Lilliefors 5% Critical Value | 0.068767 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -8.517193 | | |
| Maximum of log data | 1.335001 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.542604 | 95% H-UCL | 0.035211 |
| Standard Deviation of log data | 1.872599 | 95% Chebyshev (MVUE) UCL | 0.043935 |
| Variance of log data | 3.506629 | 97.5% Chebyshev (MVUE) UCL | 0.053435 |
| | | 99% Chebyshev (MVUE) UCL | 0.072095 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.149402 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.16979 |
| | | Mod-t UCL (Adjusted for skewness) | 0.152899 |
| | | Jackknife UCL | 0.149719 |
| | | Standard Bootstrap UCL | 0.148678 |
| | | Bootstrap-t UCL | 0.220972 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.377395 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.151317 |
| | | BCA Bootstrap UCL | 0.188633 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.241992 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.306336 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.432728 |

General Statistics

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|----------------------------------|----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Carbon tetrachloride | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 149 | Lilliefors Test Statistic | 0.504546 |
| Number of Unique Samples | 12 | Lilliefors 5% Critical Value | 0.072584 |
| Minimum | 0.002 | Data not normal at 5% significance level | |
| Maximum | 2.8 | | |
| Mean | 0.031903 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.064309 |
| Standard Deviation | 0.238985 | | |
| Variance | 0.057114 | Gamma Distribution Test | |
| Coefficient of Variation | 7.491069 | A-D Test Statistic | 55.71595 |
| Skewness | 10.80364 | A-D 5% Critical Value | 0.870381 |
| | | K-S Test Statistic | 0.555872 |
| Gamma Statistics | | K-S 5% Critical Value | 0.08346 |
| k hat | 0.29554 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.294063 | at 5% significance level | |
| Theta hat | 0.107947 | | |
| Theta star | 0.108489 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 88.07079 | Approximate Gamma UCL | 0.041698 |
| nu star | 87.63089 | Adjusted Gamma UCL | 0.041807 |
| Approx. Chi Square Value (.05) | 67.04611 | | |
| Adjusted Level of Significance | 0.048389 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 66.87123 | Lilliefors Test Statistic | 0.449765 |
| | | Lilliefors 5% Critical Value | 0.072584 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -6.214608 | | |
| Maximum of log data | 1.029619 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.784016 | 95% H-UCL | 0.005955 |
| Standard Deviation of log data | 0.985756 | 95% Chebyshev (MVUE) UCL | 0.007083 |
| Variance of log data | 0.971716 | 97.5% Chebyshev (MVUE) UCL | 0.007994 |
| | | 99% Chebyshev (MVUE) UCL | 0.009784 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.064106 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.082622 |
| | | Mod-t UCL (Adjusted for skewness) | 0.067197 |
| | | Jackknife UCL | 0.064309 |
| | | Standard Bootstrap UCL | 0.064233 |
| | | Bootstrap-t UCL | 0.182653 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.202345 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.068698 |
| | | BCA Bootstrap UCL | 0.101607 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.117243 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.15417 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.226706 |

General Statistics

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|------------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEPIHH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Chloroethane | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 165 | Lilliefors Test Statistic | 0.446401 |
| Number of Unique Samples | 27 | Lilliefors 5% Critical Value | 0.068975 |
| Minimum | 0.003 | Data not normal at 5% significance level | |
| Maximum | 5.8 | | |
| Mean | 0.128691 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.005 | Student's-t UCL | 0.204974 |
| Standard Deviation | 0.592357 | | |
| Variance | 0.350887 | Gamma Distribution Test | |
| Coefficient of Variation | 4.602945 | A-D Test Statistic | 45.55809 |
| Skewness | 7.369187 | A-D 5% Critical Value | 0.882998 |
| | | K-S Test Statistic | 0.493794 |
| Gamma Statistics | | K-S 5% Critical Value | 0.079421 |
| k hat | 0.268008 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.267175 | at 5% significance level | |
| Theta hat | 0.480176 | | |
| Theta star | 0.481672 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 88.44256 | Approximate Gamma UCL | 0.168054 |
| nu star | 88.16785 | Adjusted Gamma UCL | 0.168449 |
| Approx. Chi Square Value (.05) | 67.51627 | | |
| Adjusted Level of Significance | 0.048545 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 67.35796 | Lilliefors Test Statistic | 0.432206 |
| | | Lilliefors 5% Critical Value | 0.068975 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -5.809143 | | |
| Maximum of log data | 1.757858 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -4.670943 | 95% H-UCL | 0.048175 |
| Standard Deviation of log data | 1.608087 | 95% Chebyshev (MVUE) UCL | 0.060226 |
| Variance of log data | 2.585943 | 97.5% Chebyshev (MVUE) UCL | 0.071782 |
| | | 99% Chebyshev (MVUE) UCL | 0.094479 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.204543 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.232812 |
| | | Mod-t UCL (Adjusted for skewness) | 0.209383 |
| | | Jackknife UCL | 0.204974 |
| | | Standard Bootstrap UCL | 0.205036 |
| | | Bootstrap-t UCL | 0.283546 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.264744 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.206315 |
| | | BCA Bootstrap UCL | 0.274279 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.329701 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.416679 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.587529 |

General Statistics

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|----------------------------------|----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Carbon tetrachloride | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 149 | Lilliefors Test Statistic | 0.504546 |
| Number of Unique Samples | 12 | Lilliefors 5% Critical Value | 0.072584 |
| Minimum | 0.002 | Data not normal at 5% significance level | |
| Maximum | 2.8 | | |
| Mean | 0.031903 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.064309 |
| Standard Deviation | 0.238985 | | |
| Variance | 0.057114 | Gamma Distribution Test | |
| Coefficient of Variation | 7.491069 | A-D Test Statistic | 55.71595 |
| Skewness | 10.80364 | A-D 5% Critical Value | 0.870381 |
| | | K-S Test Statistic | 0.555872 |
| Gamma Statistics | | K-S 5% Critical Value | 0.08346 |
| k hat | 0.29554 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.294063 | at 5% significance level | |
| Theta hat | 0.107947 | | |
| Theta star | 0.108489 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 88.07079 | Approximate Gamma UCL | 0.041698 |
| nu star | 87.63089 | Adjusted Gamma UCL | 0.041807 |
| Approx. Chi Square Value (.05) | 67.04611 | | |
| Adjusted Level of Significance | 0.048389 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 66.87123 | Lilliefors Test Statistic | 0.449765 |
| | | Lilliefors 5% Critical Value | 0.072584 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -6.214608 | | |
| Maximum of log data | 1.029619 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.784016 | 95% H-UCL | 0.005955 |
| Standard Deviation of log data | 0.985756 | 95% Chebyshev (MVUE) UCL | 0.007083 |
| Variance of log data | 0.971716 | 97.5% Chebyshev (MVUE) UCL | 0.007994 |
| | | 99% Chebyshev (MVUE) UCL | 0.009784 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.064106 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.082622 |
| | | Mod-t UCL (Adjusted for skewness) | 0.067197 |
| | | Jackknife UCL | 0.064309 |
| | | Standard Bootstrap UCL | 0.064871 |
| | | Bootstrap-t UCL | 0.187531 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.182006 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.069792 |
| | | BCA Bootstrap UCL | 0.105681 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.117243 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.15417 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.226706 |

General Statistics

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|----------------------------------|-------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMYSAEPIHH 2004 REVProUCLISS-MainSt-InputFile.xls | | |
| Variable: | Cis-1,2-Dichloroethene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 104 | Lilliefors Test Statistic | 0.506241 |
| Number of Unique Samples | 40 | Lilliefors 5% Critical Value | 0.086879 |
| Minimum | 0.0007 | Data not normal at 5% significance level | |
| Maximum | 3300 | | |
| Mean | 32.3942 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.00275 | Student's-t UCL | 85.05518 |
| Standard Deviation | 323.5598 | | |
| Variance | 104691 | Gamma Distribution Test | |
| Coefficient of Variation | 9.988202 | A-D Test Statistic | 30.06208 |
| Skewness | 10.1948 | A-D 5% Critical Value | 1.021706 |
| | | K-S Test Statistic | 0.412821 |
| Gamma Statistics | | K-S 5% Critical Value | 0.101912 |
| k hat | 0.100952 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.10445 | at 5% significance level | |
| Theta hat | 320.8862 | | |
| Theta star | 310.1394 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 20.99808 | Approximate Gamma UCL | 58.01418 |
| nu star | 21.7257 | Adjusted Gamma UCL | 58.50078 |
| Approx. Chi Square Value (.05) | 12.13128 | | |
| Adjusted Level of Significance | 0.047692 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 12.03038 | Lilliefors Test Statistic | 0.268861 |
| | | Lilliefors 5% Critical Value | 0.086879 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -7.26443 | | |
| Maximum of log data | 8.101678 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -4.556973 | 95% H-UCL | 0.621109 |
| Standard Deviation of log data | 2.497588 | 95% Chebyshev (MVUE) UCL | 0.606599 |
| Variance of log data | 6.237948 | 97.5% Chebyshev (MVUE) UCL | 0.777468 |
| | | 99% Chebyshev (MVUE) UCL | 1.113106 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 84.58154 |
| | | Adj-CLT UCL (Adjusted for skewness) | 118.4722 |
| | | Mod-t UCL (Adjusted for skewness) | 90.34144 |
| | | Jackknife UCL | 85.05518 |
| | | Standard Bootstrap UCL | 81.87248 |
| | | Bootstrap-t UCL | 8199.439 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 8029.855 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 95.83176 |
| | | BCA Bootstrap UCL | 159.2579 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 170.6918 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 230.5333 |
| | | 99% Chebyshev (Mean, Sd) UCL | 348.0803 |

General Statistics

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|------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCLASS-MainSt-InputFile.xls | | |
| Variable: | trans-1,2-Dichloroethene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 165 | Lilliefors Test Statistic | 0.442312 |
| Number of Unique Samples | 26 | Lilliefors 5% Critical Value | 0.068975 |
| Minimum | 0.0006 | Data not normal at 5% significance level | |
| Maximum | 2.8 | | |
| Mean | 0.074748 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.118295 |
| Standard Deviation | 0.338155 | | |
| Variance | 0.114349 | Gamma Distribution Test | |
| Coefficient of Variation | 4.523941 | A-D Test Statistic | 45.50967 |
| Skewness | 6.840457 | A-D 5% Critical Value | 0.888826 |
| | | K-S Test Statistic | 0.493766 |
| Gamma Statistics | | K-S 5% Critical Value | 0.079628 |
| k hat | 0.255031 | Data do not follow gamma distribution at 5% significance level | |
| k star (bias corrected) | 0.254435 | | |
| Theta hat | 0.293093 | | |
| Theta star | 0.29378 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 84.16038 | Approximate Gamma UCL | 0.098309 |
| nu star | 83.96352 | Adjusted Gamma UCL | 0.098546 |
| Approx. Chi Square Value (.05) | 63.84059 | | |
| Adjusted Level of Significance | 0.048545 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 63.68684 | Lilliefors Test Statistic | 0.441783 |
| | | Lilliefors 5% Critical Value | 0.068975 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -7.418581 | | |
| Maximum of log data | 1.029619 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.369797 | 95% H-UCL | 0.025664 |
| Standard Deviation of log data | 1.643023 | 95% Chebyshev (MVUE) UCL | 0.032109 |
| Variance of log data | 2.699526 | 97.5% Chebyshev (MVUE) UCL | 0.038379 |
| | | 99% Chebyshev (MVUE) UCL | 0.050695 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.118049 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.133029 |
| | | Mod-t UCL (Adjusted for skewness) | 0.120632 |
| | | Jackknife UCL | 0.118295 |
| | | Standard Bootstrap UCL | 0.118336 |
| | | Bootstrap-t UCL | 0.176134 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.282724 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.123056 |
| | | BCA Bootstrap UCL | 0.158862 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.189497 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.23915 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.336682 |

General Statistics

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|----------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMYSAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Tetrachloroethene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 169 | Lilliefors Test Statistic | 0.503794 |
| Number of Unique Samples | 45 | Lilliefors 5% Critical Value | 0.068154 |
| Minimum | 0.0003 | Data not normal at 5% significance level | |
| Maximum | 1200 | | |
| Mean | 7.266932 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 19.01062 |
| Standard Deviation | 92.30369 | | |
| Variance | 8519.971 | Gamma Distribution Test | |
| Coefficient of Variation | 12.70188 | A-D Test Statistic | 51.71761 |
| Skewness | 12.99624 | A-D 5% Critical Value | 1.06007 |
| | | K-S Test Statistic | 0.414666 |
| Gamma Statistics | | K-S 5% Critical Value | 0.083437 |
| k hat | 0.110444 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.112429 | at 5% significance level | |
| Theta hat | 65.79717 | | |
| Theta star | 64.63594 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 37.33022 | Approximate Gamma UCL | 11.09822 |
| nu star | 38.00089 | Adjusted Gamma UCL | 11.13902 |
| Approx.Chi Square Value (.05) | 24.88236 | | |
| Adjusted Level of Significance | 0.04858 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 24.79122 | Lilliefors Test Statistic | 0.315754 |
| | | Lilliefors 5% Critical Value | 0.068154 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -8.111728 | | |
| Maximum of log data | 7.090077 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.276635 | 95% H-UCL | 0.080398 |
| Standard Deviation of log data | 2.106681 | 95% Chebyshev (MVUE) UCL | 0.098658 |
| Variance of log data | 4.438107 | 97.5% Chebyshev (MVUE) UCL | 0.121823 |
| | | 99% Chebyshev (MVUE) UCL | 0.167327 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 18.94586 |
| | | Adj-CLT UCL (Adjusted for skewness) | 26.53042 |
| | | Mod-t UCL (Adjusted for skewness) | 20.19365 |
| | | Jackknife UCL | 19.01062 |
| | | Standard Bootstrap UCL | 19.0104 |
| | | Bootstrap-t UCL | 2133.484 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 1822.947 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 21.46323 |
| | | BCA Bootstrap UCL | 28.68793 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 38.21635 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 51.60819 |
| | | 99% Chebyshev (Mean, Sd) UCL | 77.91386 |

General Statistics

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|----------------------------------|----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Trichloroethene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 175 | Lilliefors Test Statistic | 0.490123 |
| Number of Unique Samples | 58 | Lilliefors 5% Critical Value | 0.066975 |
| Minimum | 0.0003 | Data not normal at 5% significance level | |
| Maximum | 560 | | |
| Mean | 4.026619 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.003 | Student's-t UCL | 9.389841 |
| Standard Deviation | 42.90414 | | |
| Variance | 1840.765 | Gamma Distribution Test | |
| Coefficient of Variation | 10.65513 | A-D Test Statistic | 41.0544 |
| Skewness | 12.70535 | A-D 5% Critical Value | 1.036562 |
| | | K-S Test Statistic | 0.36385 |
| Gamma Statistics | | K-S 5% Critical Value | 0.081001 |
| k hat | 0.127078 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.128709 | at 5% significance level | |
| Theta hat | 31.68629 | | |
| Theta star | 31.28474 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 44.47719 | Approximate Gamma UCL | 5.918272 |
| nu star | 45.04805 | Adjusted Gamma UCL | 5.937325 |
| Approx. Chi Square Value (.05) | 30.64938 | | |
| Adjusted Level of Significance | 0.048629 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 30.55103 | Lilliefors Test Statistic | 0.207678 |
| | | Lilliefors 5% Critical Value | 0.066975 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -8.111728 | | |
| Maximum of log data | 6.327937 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -4.798931 | 95% H-UCL | 0.343264 |
| Standard Deviation of log data | 2.463769 | 95% Chebyshev (MVUE) UCL | 0.398742 |
| Variance of log data | 6.070159 | 97.5% Chebyshev (MVUE) UCL | 0.501918 |
| | | 99% Chebyshev (MVUE) UCL | 0.704587 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 9.361287 |
| | | Adj-CLT UCL (Adjusted for skewness) | 12.68963 |
| | | Mod-t UCL (Adjusted for skewness) | 9.908996 |
| | | Jackknife UCL | 9.389841 |
| | | Standard Bootstrap UCL | 9.494459 |
| | | Bootstrap-t UCL | 115.1763 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 106.2642 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 10.46481 |
| | | BCA Bootstrap UCL | 16.91645 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 18.16361 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 24.2807 |
| | | 99% Chebyshev (Mean, Sd) UCL | 36.29653 |

General Statistics

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|------------------------------------|----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Vinyl chloride | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 165 | Lilliefors Test Statistic | 0.455815 |
| Number of Unique Samples | 28 | Lilliefors 5% Critical Value | 0.068975 |
| Minimum | 0.004 | Data not normal at 5% significance level | |
| Maximum | 36 | | |
| Mean | 0.317758 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.005 | Student's-t UCL | 0.681824 |
| Standard Deviation | 2.82706 | | |
| Variance | 7.992267 | Gamma Distribution Test | |
| Coefficient of Variation | 8.896908 | A-D Test Statistic | 48.46694 |
| Skewness | 12.42659 | A-D 5% Critical Value | 0.910059 |
| | | K-S Test Statistic | 0.48626 |
| Gamma Statistics | | K-S 5% Critical Value | 0.08038 |
| k hat | 0.207761 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.208024 | at 5% significance level | |
| Theta hat | 1.529437 | | |
| Theta star | 1.527504 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 68.56118 | Approximate Gamma UCL | 0.431322 |
| nu star | 68.64795 | Adjusted Gamma UCL | 0.432486 |
| Approx. Chi Square Value (.05) | 50.57332 | | |
| Adjusted Level of Significance | 0.048545 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 50.43726 | Lilliefors Test Statistic | 0.425709 |
| | | Lilliefors 5% Critical Value | 0.068975 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -5.521461 | | |
| Maximum of log data | 3.583519 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -4.667568 | 95% H-UCL | 0.050573 |
| Standard Deviation of log data | 1.631019 | 95% Chebyshev (MVUE) UCL | 0.063258 |
| Variance of log data | 2.660223 | 97.5% Chebyshev (MVUE) UCL | 0.075536 |
| | | 99% Chebyshev (MVUE) UCL | 0.099656 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.679767 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.907268 |
| | | Mod-t UCL (Adjusted for skewness) | 0.717309 |
| | | Jackknife UCL | 0.681824 |
| | | Standard Bootstrap UCL | 0.689866 |
| | | Bootstrap-t UCL | 2.819774 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 2.0092 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.7406 |
| | | BCA Bootstrap UCL | 1.031712 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 1.277092 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 1.692196 |
| | | 99% Chebyshev (Mean, Sd) UCL | 2.507589 |

General Statistics

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|----------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMYSAEP\HH 2004 REV\ProUCLASS-MainSt-InputFile.xls | | |
| Variable: | Xylenes, Total | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 170 | Lilliefors Test Statistic | 0.464682 |
| Number of Unique Samples | 37 | Lilliefors 5% Critical Value | 0.067953 |
| Minimum | 0.0002 | Data not normal at 5% significance level | |
| Maximum | 91 | | |
| Mean | 0.938364 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 1.881583 |
| Standard Deviation | 7.435713 | | |
| Variance | 55.28983 | Gamma Distribution Test | |
| Coefficient of Variation | 7.924124 | A-D Test Statistic | 43.79223 |
| Skewness | 11.00372 | A-D 5% Critical Value | 1.002952 |
| | | K-S Test Statistic | 0.455869 |
| Gamma Statistics | | K-S 5% Critical Value | 0.081553 |
| k hat | 0.145656 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.147007 | at 5% significance level | |
| Theta hat | 6.44232 | | |
| Theta star | 6.383108 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 49.52312 | Approximate Gamma UCL | 1.349812 |
| nu star | 49.98252 | Adjusted Gamma UCL | 1.354031 |
| Approx. Chi Square Value (.05) | 34.74691 | | |
| Adjusted Level of Significance | 0.048588 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 34.63864 | Lilliefors Test Statistic | 0.382143 |
| | | Lilliefors 5% Critical Value | 0.067953 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -8.517193 | | |
| Maximum of log data | 4.51086 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.362778 | 95% H-UCL | 0.130609 |
| Standard Deviation of log data | 2.32074 | 95% Chebyshev (MVUE) UCL | 0.155424 |
| Variance of log data | 5.385833 | 97.5% Chebyshev (MVUE) UCL | 0.194342 |
| | | 99% Chebyshev (MVUE) UCL | 0.270789 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 1.876413 |
| | | Adj-CLT UCL (Adjusted for skewness) | 2.390686 |
| | | Mod-t UCL (Adjusted for skewness) | 1.961799 |
| | | Jackknife UCL | 1.881583 |
| | | Standard Bootstrap UCL | 1.875348 |
| | | Bootstrap-t UCL | 4.286418 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 5.453741 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 2.052035 |
| | | BCA Bootstrap UCL | 2.842593 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 3.424214 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 4.499844 |
| | | 99% Chebyshev (Mean, Sd) UCL | 6.61271 |

General Statistics

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|----------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMYSAEPIHH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | 2-Methylnaphthalene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 89 | Lilliefors Test Statistic | 0.252844 |
| Number of Unique Samples | 44 | Lilliefors 5% Critical Value | 0.093916 |
| Minimum | 5.5E-008 | Data not normal at 5% significance level | |
| Maximum | 25 | | |
| Mean | 3.761416 | 95% UCL (Assuming Normal Distribution) | |
| Median | 5.25 | Student's-t UCL | 4.390708 |
| Standard Deviation | 3.571283 | | |
| Variance | 12.75406 | Gamma Distribution Test | |
| Coefficient of Variation | 0.949452 | A-D Test Statistic | 10.68926 |
| Skewness | 2.22556 | A-D 5% Critical Value | 0.834306 |
| | | K-S Test Statistic | 0.372588 |
| Gamma Statistics | | K-S 5% Critical Value | 0.101064 |
| k hat | 0.435622 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.428429 | at 5% significance level | |
| Theta hat | 8.634582 | | |
| Theta star | 8.779555 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 77.54076 | Approximate Gamma UCL | 5.019919 |
| nu star | 76.26036 | Adjusted Gamma UCL | 5.043886 |
| Approx. Chi Square Value (.05) | 57.14175 | | |
| Adjusted Level of Significance | 0.047303 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 56.87022 | Lilliefors Test Statistic | 0.339485 |
| | | Lilliefors 5% Critical Value | 0.093916 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -16.71593 | | |
| Maximum of log data | 3.218876 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.165265 | 95% H-UCL | 341.5008 |
| Standard Deviation of log data | 3.004555 | 95% Chebyshev (MVUE) UCL | 212.6311 |
| Variance of log data | 9.02735 | 97.5% Chebyshev (MVUE) UCL | 278.5073 |
| | | 99% Chebyshev (MVUE) UCL | 407.9084 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 4.384084 |
| | | Adj-CLT UCL (Adjusted for skewness) | 4.479507 |
| | | Mod-t UCL (Adjusted for skewness) | 4.405593 |
| | | Jackknife UCL | 4.390708 |
| | | Standard Bootstrap UCL | 4.388481 |
| | | Bootstrap-t UCL | 4.487445 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 4.653909 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 4.436921 |
| | | BCA Bootstrap UCL | 4.665 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 5.4115 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 6.125492 |
| | | 99% Chebyshev (Mean, Sd) UCL | 7.527993 |

General Statistics

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|----------------------------------|----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEPIHH 2004 REV\ProUCLASS-MainSt-InputFile.xls | | |
| Variable: | Benzo[a]anthracene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 177 | Lilliefors Test Statistic | 0.280906 |
| Number of Unique Samples | 77 | Lilliefors 5% Critical Value | 0.066596 |
| Minimum | 5.5E-008 | Data not normal at 5% significance level | |
| Maximum | 13 | | |
| Mean | 3.173445 | 95% UCL (Assuming Normal Distribution) | |
| Median | 5.1 | Student's-t UCL | 3.519549 |
| Standard Deviation | 2.784674 | | |
| Variance | 7.754408 | Gamma Distribution Test | |
| Coefficient of Variation | 0.877492 | A-D Test Statistic | 18.10322 |
| Skewness | 0.197622 | A-D 5% Critical Value | 0.815553 |
| | | K-S Test Statistic | 0.323714 |
| Gamma Statistics | | K-S 5% Critical Value | 0.073353 |
| k hat | 0.549081 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.543541 | at 5% significance level | |
| Theta hat | 5.779556 | | |
| Theta star | 5.838463 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 194.3747 | Approximate Gamma UCL | 3.785189 |
| nu star | 192.4135 | Adjusted Gamma UCL | 3.790633 |
| Approx.Chi Square Value (.05) | 161.3166 | | |
| Adjusted Level of Significance | 0.048644 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 161.0849 | Lilliefors Test Statistic | 0.291225 |
| | | Lilliefors 5% Critical Value | 0.066596 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -16.71593 | | |
| Maximum of log data | 2.564949 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 0.014502 | 95% H-UCL | 26.39299 |
| Standard Deviation of log data | 2.301187 | 95% Chebyshev (MVUE) UCL | 31.71341 |
| Variance of log data | 5.295461 | 97.5% Chebyshev (MVUE) UCL | 39.55285 |
| | | 99% Chebyshev (MVUE) UCL | 54.95189 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 3.517727 |
| | | Adj-CLT UCL (Adjusted for skewness) | 3.521049 |
| | | Mod-t UCL (Adjusted for skewness) | 3.520067 |
| | | Jackknife UCL | 3.519549 |
| | | Standard Bootstrap UCL | 3.516216 |
| | | Bootstrap-t UCL | 3.519581 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 3.513236 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 3.537455 |
| | | BCA Bootstrap UCL | 3.668102 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 4.085801 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 4.480578 |
| | | 99% Chebyshev (Mean, Sd) UCL | 5.256042 |

General Statistics

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|----------------------------------|----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCLASS-MainSt-InputFile.xls | | |
| Variable: | Benzo[a]pyrene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 178 | Lilliefors Test Statistic | 0.28247 |
| Number of Unique Samples | 75 | Lilliefors 5% Critical Value | 0.066409 |
| Minimum | 5.5E-008 | Data not normal at 5% significance level | |
| Maximum | 13 | | |
| Mean | 3.139457 | 95% UCL (Assuming Normal Distribution) | |
| Median | 5.1 | Student's-t UCL | 3.483479 |
| Standard Deviation | 2.775808 | | |
| Variance | 7.705111 | Gamma Distribution Test | |
| Coefficient of Variation | 0.884168 | A-D Test Statistic | 18.67054 |
| Skewness | 0.209875 | A-D 5% Critical Value | 0.8138 |
| | | K-S Test Statistic | 0.322986 |
| Gamma Statistics | | K-S 5% Critical Value | 0.072992 |
| k hat | 0.567259 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.561444 | at 5% significance level | |
| Theta hat | 5.534431 | | |
| Theta star | 5.591755 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 201.9443 | Approximate Gamma UCL | 3.731617 |
| nu star | 199.8741 | Adjusted Gamma UCL | 3.736846 |
| Approx. Chi Square Value (.05) | 168.1566 | | |
| Adjusted Level of Significance | 0.048652 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 167.9213 | Lilliefors Test Statistic | 0.292247 |
| | | Lilliefors 5% Critical Value | 0.066409 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -16.71593 | | |
| Maximum of log data | 2.564949 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 0.045684 | 95% H-UCL | 21.4699 |
| Standard Deviation of log data | 2.214482 | 95% Chebyshev (MVUE) UCL | 26.15196 |
| Variance of log data | 4.903928 | 97.5% Chebyshev (MVUE) UCL | 32.44462 |
| | | 99% Chebyshev (MVUE) UCL | 44.80533 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 3.481678 |
| | | Adj-CLT UCL (Adjusted for skewness) | 3.485175 |
| | | Mod-t UCL (Adjusted for skewness) | 3.484024 |
| | | Jackknife UCL | 3.483479 |
| | | Standard Bootstrap UCL | 3.483019 |
| | | Bootstrap-t UCL | 3.49718 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 3.481921 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 3.467606 |
| | | BCA Bootstrap UCL | 3.633608 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 4.046351 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 4.438764 |
| | | 99% Chebyshev (Mean, Sd) UCL | 5.209585 |

General Statistics

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|----------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Benzo[b]fluoranthene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 144 | Lilliefors Test Statistic | 0.293258 |
| Number of Unique Samples | 71 | Lilliefors 5% Critical Value | 0.073833 |
| Minimum | 5.5E-008 | Data not normal at 5% significance level | |
| Maximum | 9.9 | | |
| Mean | 2.609358 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.47 | Student's-t UCL | 2.979496 |
| Standard Deviation | 2.682845 | | |
| Variance | 7.19766 | Gamma Distribution Test | |
| Coefficient of Variation | 1.028163 | A-D Test Statistic | 13.22287 |
| Skewness | 0.36451 | A-D 5% Critical Value | 0.820612 |
| | | K-S Test Statistic | 0.269407 |
| Gamma Statistics | | K-S 5% Critical Value | 0.082651 |
| k hat | 0.495523 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.489829 | at 5% significance level | |
| Theta hat | 5.265865 | | |
| Theta star | 5.327076 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 142.7106 | Approximate Gamma UCL | 3.211527 |
| nu star | 141.0708 | Adjusted Gamma UCL | 3.218245 |
| Approx. Chi Square Value (.05) | 114.6197 | | |
| Adjusted Level of Significance | 0.048333 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 114.3804 | Lilliefors Test Statistic | 0.23803 |
| | | Lilliefors 5% Critical Value | 0.073833 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -16.71593 | | |
| Maximum of log data | 2.292535 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.324528 | 95% H-UCL | 20.9154 |
| Standard Deviation of log data | 2.311743 | 95% Chebyshev (MVUE) UCL | 24.15403 |
| Variance of log data | 5.344155 | 97.5% Chebyshev (MVUE) UCL | 30.364 |
| | | 99% Chebyshev (MVUE) UCL | 42.56228 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 2.977098 |
| | | Adj-CLT UCL (Adjusted for skewness) | 2.984355 |
| | | Mod-t UCL (Adjusted for skewness) | 2.980628 |
| | | Jackknife UCL | 2.979496 |
| | | Standard Bootstrap UCL | 2.971783 |
| | | Bootstrap-t UCL | 2.977483 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 2.968694 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 2.973316 |
| | | BCA Bootstrap UCL | 3.080847 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 3.583879 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 4.005555 |
| | | 99% Chebyshev (Mean, Sd) UCL | 4.833856 |

General Statistics

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|----------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMYSAEP\HH 2004 REV\ProUCLASS-MainSt-InputFile.xls | | |
| Variable: | Benzo[k]fluoranthene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 169 | Lilliefors Test Statistic | 0.281956 |
| Number of Unique Samples | 73 | Lilliefors 5% Critical Value | 0.068154 |
| Minimum | 5.5E-008 | Data not normal at 5% significance level | |
| Maximum | 12 | | |
| Mean | 3.04353 | 95% UCL (Assuming Normal Distribution) | |
| Median | 5.1 | Student's-t UCL | 3.393452 |
| Standard Deviation | 2.750343 | | |
| Variance | 7.564387 | Gamma Distribution Test | |
| Coefficient of Variation | 0.903669 | A-D Test Statistic | 17.7146 |
| Skewness | 0.217281 | A-D 5% Critical Value | 0.814677 |
| | | K-S Test Statistic | 0.317632 |
| Gamma Statistics | | K-S 5% Critical Value | 0.075491 |
| k hat | 0.556255 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.550326 | at 5% significance level | |
| Theta hat | 5.471462 | | |
| Theta star | 5.530415 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 188.0143 | Approximate Gamma UCL | 3.641735 |
| nu star | 186.0101 | Adjusted Gamma UCL | 3.647323 |
| Approx. Chi Square Value (.05) | 155.4553 | | |
| Adjusted Level of Significance | 0.04858 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 155.2172 | Lilliefors Test Statistic | 0.285289 |
| | | Lilliefors 5% Critical Value | 0.068154 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -16.71593 | | |
| Maximum of log data | 2.484907 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.010383 | 95% H-UCL | 21.65952 |
| Standard Deviation of log data | 2.232352 | 95% Chebyshev (MVUE) UCL | 26.13988 |
| Variance of log data | 4.983394 | 97.5% Chebyshev (MVUE) UCL | 32.52679 |
| | | 99% Chebyshev (MVUE) UCL | 45.07264 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 3.391523 |
| | | Adj-CLT UCL (Adjusted for skewness) | 3.395301 |
| | | Mod-t UCL (Adjusted for skewness) | 3.394042 |
| | | Jackknife UCL | 3.393452 |
| | | Standard Bootstrap UCL | 3.379727 |
| | | Bootstrap-t UCL | 3.374056 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 3.376468 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 3.391243 |
| | | BCA Bootstrap UCL | 3.478216 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 3.965719 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 4.364752 |
| | | 99% Chebyshev (Mean, Sd) UCL | 5.148573 |

General Statistics

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|------------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEPIHH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Bis(2-Ethylhexyl)phthalate | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 73 | Lilliefors Test Statistic | 0.446396 |
| Number of Unique Samples | 33 | Lilliefors 5% Critical Value | 0.103698 |
| Minimum | 0.034 | Data not normal at 5% significance level | |
| Maximum | 96 | | |
| Mean | 5.554904 | 95% UCL (Assuming Normal Distribution) | |
| Median | 5.35 | Student's-t UCL | 7.701179 |
| Standard Deviation | 11.00513 | | |
| Variance | 121.1129 | Gamma Distribution Test | |
| Coefficient of Variation | 1.981156 | A-D Test Statistic | 11.02746 |
| Skewness | 7.900422 | A-D 5% Critical Value | 0.794351 |
| | | K-S Test Statistic | 0.371295 |
| Gamma Statistics | | K-S 5% Critical Value | 0.108693 |
| k hat | 0.733754 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.712732 | at 5% significance level | |
| Theta hat | 7.570526 | | |
| Theta star | 7.793817 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 107.1281 | Approximate Gamma UCL | 7.091127 |
| nu star | 104.0589 | Adjusted Gamma UCL | 7.126137 |
| Approx. Chi Square Value (.05) | 81.51557 | | |
| Adjusted Level of Significance | 0.046712 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 81.11508 | Lilliefors Test Statistic | 0.41885 |
| | | Lilliefors 5% Critical Value | 0.103698 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -3.381395 | | |
| Maximum of log data | 4.564348 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 0.896392 | 95% H-UCL | 16.8167 |
| Standard Deviation of log data | 1.64514 | 95% Chebyshev (MVUE) UCL | 19.89427 |
| Variance of log data | 2.706486 | 97.5% Chebyshev (MVUE) UCL | 24.5657 |
| | | 99% Chebyshev (MVUE) UCL | 33.74184 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 7.673563 |
| | | Adj-CLT UCL (Adjusted for skewness) | 8.946196 |
| | | Mod-t UCL (Adjusted for skewness) | 7.899684 |
| | | Jackknife UCL | 7.701179 |
| | | Standard Bootstrap UCL | 7.646846 |
| | | Bootstrap-t UCL | 12.41783 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 16.89885 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 8.047438 |
| | | BCA Bootstrap UCL | 9.641918 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 11.1694 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 13.59879 |
| | | 99% Chebyshev (Mean, Sd) UCL | 18.37087 |

General Statistics

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|------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEPIHH 2004 REV\ProUCLSS-MainSt-InputFile.xls | | |
| Variable: | Indeno[1,2,3-cd]pyrene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 134 | Lilliefors Test Statistic | 0.318672 |
| Number of Unique Samples | 66 | Lilliefors 5% Critical Value | 0.076539 |
| Minimum | 0.015 | Data not normal at 5% significance level | |
| Maximum | 9 | | |
| Mean | 2.363618 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.224 | Student's-t UCL | 2.737385 |
| Standard Deviation | 2.612102 | | |
| Variance | 6.823076 | Gamma Distribution Test | |
| Coefficient of Variation | 1.105129 | A-D Test Statistic | 13.84857 |
| Skewness | 0.444594 | A-D 5% Critical Value | 0.818612 |
| | | K-S Test Statistic | 0.266086 |
| Gamma Statistics | | K-S 5% Critical Value | 0.085291 |
| k hat | 0.5069 | Data do not follow gamma distribution at 5% significance level | |
| k star (bias corrected) | 0.500527 | | |
| Theta hat | 4.662884 | | |
| Theta star | 4.722259 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 135.8493 | Approximate Gamma UCL | 2.925474 |
| nu star | 134.1412 | Adjusted Gamma UCL | 2.932239 |
| Approx. Chi Square Value (.05) | 108.3785 | | |
| Adjusted Level of Significance | 0.048209 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 108.1285 | Lilliefors Test Statistic | 0.256414 |
| | | Lilliefors 5% Critical Value | 0.076539 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -4.199705 | | |
| Maximum of log data | 2.197225 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.390219 | 95% H-UCL | 6.308166 |
| Standard Deviation of log data | 1.863333 | 95% Chebyshev (MVUE) UCL | 7.76172 |
| Variance of log data | 3.472008 | 97.5% Chebyshev (MVUE) UCL | 9.514082 |
| | | 99% Chebyshev (MVUE) UCL | 12.95626 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 2.734781 |
| | | Adj-CLT UCL (Adjusted for skewness) | 2.744042 |
| | | Mod-t UCL (Adjusted for skewness) | 2.738829 |
| | | Jackknife UCL | 2.737385 |
| | | Standard Bootstrap UCL | 2.728676 |
| | | Bootstrap-t UCL | 2.73225 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 2.746236 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 2.726405 |
| | | BCA Bootstrap UCL | 2.886554 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 3.347209 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 3.772809 |
| | | 99% Chebyshev (Mean, Sd) UCL | 4.608819 |

General Statistics

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|----------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEPIHH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Dibenz[a,h]anthracene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 68 | Lilliefors Test Statistic | 0.392402 |
| Number of Unique Samples | 40 | Lilliefors 5% Critical Value | 0.107443 |
| Minimum | 0.006 | Data not normal at 5% significance level | |
| Maximum | 1.2 | | |
| Mean | 0.207184 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.18 | Student's-t UCL | 0.246873 |
| Standard Deviation | 0.196222 | | |
| Variance | 0.038503 | Gamma Distribution Test | |
| Coefficient of Variation | 0.947091 | A-D Test Statistic | 7.974025 |
| Skewness | 3.379914 | A-D 5% Critical Value | 0.766667 |
| | | K-S Test Statistic | 0.313823 |
| Gamma Statistics | | K-S 5% Critical Value | 0.109847 |
| k hat | 1.698082 | Data do not follow gamma distribution | |
| k star (bias corrected) | 1.63297 | at 5% significance level | |
| Theta hat | 0.122011 | | |
| Theta star | 0.126875 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 230.9391 | Approximate Gamma UCL | 0.243986 |
| nu star | 222.084 | Adjusted Gamma UCL | 0.24485 |
| Approx. Chi Square Value (.05) | 188.5851 | | |
| Adjusted Level of Significance | 0.046471 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 187.9202 | Lilliefors Test Statistic | 0.363349 |
| | | Lilliefors 5% Critical Value | 0.107443 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -5.115996 | | |
| Maximum of log data | 0.182322 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -1.896623 | 95% H-UCL | 0.288818 |
| Standard Deviation of log data | 0.90929 | 95% Chebyshev (MVUE) UCL | 0.350401 |
| Variance of log data | 0.826808 | 97.5% Chebyshev (MVUE) UCL | 0.404663 |
| | | 99% Chebyshev (MVUE) UCL | 0.511251 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.246324 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.256745 |
| | | Mod-t UCL (Adjusted for skewness) | 0.248498 |
| | | Jackknife UCL | 0.246873 |
| | | Standard Bootstrap UCL | 0.245411 |
| | | Bootstrap-t UCL | 0.270468 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.264407 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.245316 |
| | | BCA Bootstrap UCL | 0.268044 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.310906 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.355786 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.443945 |

General Statistics

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|----------------------------------|--------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMYSAEPIHH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Naphthalene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 92 | Lilliefors Test Statistic | 0.309815 |
| Number of Unique Samples | 42 | Lilliefors 5% Critical Value | 0.092372 |
| Minimum | 0.002 | Data not normal at 5% significance level | |
| Maximum | 10 | | |
| Mean | 3.358315 | 95% UCL (Assuming Normal Distribution) | |
| Median | 5.25 | Student's-t UCL | 3.84179 |
| Standard Deviation | 2.790591 | | |
| Variance | 7.7874 | Gamma Distribution Test | |
| Coefficient of Variation | 0.83095 | A-D Test Statistic | 11.80006 |
| Skewness | -0.147532 | A-D 5% Critical Value | 0.840918 |
| | | K-S Test Statistic | 0.368012 |
| Gamma Statistics | | K-S 5% Critical Value | 0.099807 |
| k hat | 0.40904 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.402948 | at 5% significance level | |
| Theta hat | 8.210245 | | |
| Theta star | 8.33437 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 75.26328 | Approximate Gamma UCL | 4.501882 |
| nu star | 74.14238 | Adjusted Gamma UCL | 4.522984 |
| Approx. Chi Square Value (.05) | 55.30875 | | |
| Adjusted Level of Significance | 0.047391 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 55.05072 | Lilliefors Test Statistic | 0.351845 |
| | | Lilliefors 5% Critical Value | 0.092372 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -6.214608 | | |
| Maximum of log data | 2.302585 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.391524 | 95% H-UCL | 104.556 |
| Standard Deviation of log data | 2.757052 | 95% Chebyshev (MVUE) UCL | 81.70103 |
| Variance of log data | 7.601335 | 97.5% Chebyshev (MVUE) UCL | 106.1157 |
| | | 99% Chebyshev (MVUE) UCL | 154.0736 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 3.836868 |
| | | Adj-CLT UCL (Adjusted for skewness) | 3.832086 |
| | | Mod-t UCL (Adjusted for skewness) | 3.841044 |
| | | Jackknife UCL | 3.84179 |
| | | Standard Bootstrap UCL | 3.838974 |
| | | Bootstrap-t UCL | 3.867468 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 3.854662 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 3.79888 |
| | | BCA Bootstrap UCL | 4.016033 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 4.62649 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 5.17523 |
| | | 99% Chebyshev (Mean, Sd) UCL | 6.253124 |

General Statistics

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|----------------------------------|----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Aroclor-1254 | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 164 | Lilliefors Test Statistic | 0.444156 |
| Number of Unique Samples | 75 | Lilliefors 5% Critical Value | 0.069185 |
| Minimum | 0.017 | Data not normal at 5% significance level | |
| Maximum | 10.7 | | |
| Mean | 0.140641 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.02185 | Student's-t UCL | 0.254364 |
| Standard Deviation | 0.88038 | | |
| Variance | 0.77507 | Gamma Distribution Test | |
| Coefficient of Variation | 6.25979 | A-D Test Statistic | 49.01396 |
| Skewness | 10.95215 | A-D 5% Critical Value | 0.839519 |
| | | K-S Test Statistic | 0.485574 |
| Gamma Statistics | | K-S 5% Critical Value | 0.077966 |
| k hat | 0.419746 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.416133 | at 5% significance level | |
| Theta hat | 0.335061 | | |
| Theta star | 0.33797 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 137.6767 | Approximate Gamma UCL | 0.173732 |
| nu star | 136.4915 | Adjusted Gamma UCL | 0.174056 |
| Approx. Chi Square Value (.05) | 110.4934 | | |
| Adjusted Level of Significance | 0.048537 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 110.2876 | Lilliefors Test Statistic | 0.444917 |
| | | Lilliefors 5% Critical Value | 0.069185 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -4.074542 | | |
| Maximum of log data | 2.370244 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -3.517164 | 95% H-UCL | 0.054964 |
| Standard Deviation of log data | 0.956229 | 95% Chebyshev (MVUE) UCL | 0.064831 |
| Variance of log data | 0.914375 | 97.5% Chebyshev (MVUE) UCL | 0.072677 |
| | | 99% Chebyshev (MVUE) UCL | 0.088087 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.253718 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.316539 |
| | | Mod-t UCL (Adjusted for skewness) | 0.264163 |
| | | Jackknife UCL | 0.254364 |
| | | Standard Bootstrap UCL | 0.251268 |
| | | Bootstrap-t UCL | 0.597256 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.619125 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.270475 |
| | | BCA Bootstrap UCL | 0.391777 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.440298 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.56996 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.824656 |

General Statistics

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|------------------------------------|-----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEPIHH 2004 REV\ProUCL\ISS-MainSt-InputFile.xls | | |
| Variable: | Aroclor-1260 | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 168 | Lilliefors Test Statistic | 0.451444 |
| Number of Unique Samples | 120 | Lilliefors 5% Critical Value | 0.068356 |
| Minimum | 0.00682 | Data not normal at 5% significance level | |
| Maximum | 74 | | |
| Mean | 0.720936 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0228 | Student's-t UCL | 1.467814 |
| Standard Deviation | 5.85276 | | |
| Variance | 34.2548 | Gamma Distribution Test | |
| Coefficient of Variation | 8.118275 | A-D Test Statistic | 39.20335 |
| Skewness | 11.99219 | A-D 5% Critical Value | 0.88601 |
| | | K-S Test Statistic | 0.357026 |
| Gamma Statistics | | K-S 5% Critical Value | 0.07868 |
| k hat | 0.261413 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.260713 | at 5% significance level | |
| Theta hat | 2.757847 | | |
| Theta star | 2.76525 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 87.83468 | Approximate Gamma UCL | 0.94233 |
| nu star | 87.59954 | Adjusted Gamma UCL | 0.944512 |
| Approx. Chi Square Value (.05) | 67.01867 | | |
| Adjusted Level of Significance | 0.048571 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 66.86381 | Lilliefors Test Statistic | 0.259229 |
| | | Lilliefors 5% Critical Value | 0.068356 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -4.987896 | | |
| Maximum of log data | 4.304065 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -3.024792 | 95% H-UCL | 0.181581 |
| Standard Deviation of log data | 1.437453 | 95% Chebyshev (MVUE) UCL | 0.225149 |
| Variance of log data | 2.066271 | 97.5% Chebyshev (MVUE) UCL | 0.264243 |
| | | 99% Chebyshev (MVUE) UCL | 0.341034 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 1.46367 |
| | | Adj-CLT UCL (Adjusted for skewness) | 1.910077 |
| | | Mod-t UCL (Adjusted for skewness) | 1.537444 |
| | | Jackknife UCL | 1.467814 |
| | | Standard Bootstrap UCL | 1.438556 |
| | | Bootstrap-t UCL | 4.42594 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 4.272374 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 1.544631 |
| | | BCA Bootstrap UCL | 2.11099 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 2.689198 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 3.540867 |
| | | 99% Chebyshev (Mean, Sd) UCL | 5.213805 |

General Statistics

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|------------------------------------|--------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMYSAEPIHH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Aluminum | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 175 | Lilliefors Test Statistic | 0.087494 |
| Number of Unique Samples | 157 | Lilliefors 5% Critical Value | 0.066975 |
| Minimum | 430 | Data not normal at 5% significance level | |
| Maximum | 20100 | | |
| Mean | 7241.257 | 95% UCL (Assuming Normal Distribution) | |
| Median | 7100 | Student's-t UCL | 7574.139 |
| Standard Deviation | 2662.956 | | |
| Variance | 7091336 | Gamma Distribution Test | |
| Coefficient of Variation | 0.367748 | A-D Test Statistic | 1.23397 |
| Skewness | 1.124693 | A-D 5% Critical Value | 0.753934 |
| | | K-S Test Statistic | 0.069907 |
| Gamma Statistics | | K-S 5% Critical Value | 0.07015 |
| k hat | 7.007377 | Data follow approximate gamma distribution | |
| k star (bias corrected) | 6.89106 | at 5% significance level | |
| Theta hat | 1033.376 | | |
| Theta star | 1050.819 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 2452.582 | Approximate Gamma UCL | 7597.582 |
| nu star | 2411.871 | Adjusted Gamma UCL | 7600.572 |
| Approx. Chi Square Value (.05) | 2298.755 | | |
| Adjusted Level of Significance | 0.048629 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 2297.85 | Lilliefors Test Statistic | 0.098688 |
| | | Lilliefors 5% Critical Value | 0.066975 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | 6.063785 | | |
| Maximum of log data | 9.908475 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 8.814503 | 95% H-UCL | 7761.648 |
| Standard Deviation of log data | 0.416393 | 95% Chebyshev (MVUE) UCL | 8384.051 |
| Variance of log data | 0.173383 | 97.5% Chebyshev (MVUE) UCL | 8837.201 |
| | | 99% Chebyshev (MVUE) UCL | 9727.325 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 7572.367 |
| | | Adj-CLT UCL (Adjusted for skewness) | 7590.654 |
| | | Mod-t UCL (Adjusted for skewness) | 7576.992 |
| | | Jackknife UCL | 7574.139 |
| | | Standard Bootstrap UCL | 7574.917 |
| | | Bootstrap-t UCL | 7580.795 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 7617.078 |
| Assuming gamma distribution (0.05) | | Percentile Bootstrap UCL | 7584.343 |
| | | BCA Bootstrap UCL | 7725.714 |
| Use Approximate Gamma UCL | | 95% Chebyshev (Mean, Sd) UCL | 8118.706 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 8498.379 |
| | | 99% Chebyshev (Mean, Sd) UCL | 9244.173 |

General Statistics

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|----------------------------------|--------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMYSAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Antimony | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 171 | Lilliefors Test Statistic | 0.426382 |
| Number of Unique Samples | 59 | Lilliefors 5% Critical Value | 0.067754 |
| Minimum | 0.37 | Data not normal at 5% significance level | |
| Maximum | 69 | | |
| Mean | 5.268187 | 95% UCL (Assuming Normal Distribution) | |
| Median | 5.3 | Student's-t UCL | 6.165407 |
| Standard Deviation | 7.094091 | | |
| Variance | 50.32612 | Gamma Distribution Test | |
| Coefficient of Variation | 1.34659 | A-D Test Statistic | 22.97653 |
| Skewness | 7.902176 | A-D 5% Critical Value | 0.76939 |
| | | K-S Test Statistic | 0.324279 |
| Gamma Statistics | | K-S 5% Critical Value | 0.072338 |
| k hat | 1.654009 | Data do not follow gamma distribution | |
| k star (bias corrected) | 1.62889 | at 5% significance level | |
| Theta hat | 3.185102 | | |
| Theta star | 3.234219 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 565.6711 | Approximate Gamma UCL | 5.830822 |
| nu star | 557.0804 | Adjusted Gamma UCL | 5.8358 |
| Approx.Chi Square Value (.05) | 503.3259 | | |
| Adjusted Level of Significance | 0.048596 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 502.8966 | Lilliefors Test Statistic | 0.372922 |
| | | Lilliefors 5% Critical Value | 0.067754 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -0.994252 | | |
| Maximum of log data | 4.234107 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 1.329897 | 95% H-UCL | 6.262692 |
| Standard Deviation of log data | 0.860183 | 95% Chebyshev (MVUE) UCL | 7.271796 |
| Variance of log data | 0.739915 | 97.5% Chebyshev (MVUE) UCL | 8.057037 |
| | | 99% Chebyshev (MVUE) UCL | 9.599491 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 6.160518 |
| | | Adj-CLT UCL (Adjusted for skewness) | 6.510808 |
| | | Mod-t UCL (Adjusted for skewness) | 6.220045 |
| | | Jackknife UCL | 6.165407 |
| | | Standard Bootstrap UCL | 6.168889 |
| | | Bootstrap-t UCL | 7.975575 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 11.26822 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 6.27076 |
| | | BCA Bootstrap UCL | 6.823421 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 7.632884 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 8.65609 |
| | | 99% Chebyshev (Mean, Sd) UCL | 10.66598 |

General Statistics

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|----------------------------------|----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Arsenic | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 177 | Lilliefors Test Statistic | 0.168601 |
| Number of Unique Samples | 154 | Lilliefors 5% Critical Value | 0.066596 |
| Minimum | 0.588 | Data not normal at 5% significance level | |
| Maximum | 22.9 | | |
| Mean | 4.31887 | 95% UCL (Assuming Normal Distribution) | |
| Median | 3.67 | Student's-t UCL | 4.731945 |
| Standard Deviation | 3.323508 | | |
| Variance | 11.0457 | Gamma Distribution Test | |
| Coefficient of Variation | 0.769532 | A-D Test Statistic | 1.851582 |
| Skewness | 2.867872 | A-D 5% Critical Value | 0.763173 |
| | | K-S Test Statistic | 0.078717 |
| Gamma Statistics | | K-S 5% Critical Value | 0.070281 |
| k hat | 2.475491 | Data do not follow gamma distribution | |
| k star (bias corrected) | 2.4373 | at 5% significance level | |
| Theta hat | 1.744652 | | |
| Theta star | 1.77199 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 876.3237 | Approximate Gamma UCL | 4.683579 |
| nu star | 862.8041 | Adjusted Gamma UCL | 4.68666 |
| Approx. Chi Square Value (.05) | 795.6178 | | |
| Adjusted Level of Significance | 0.048644 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 795.0947 | Lilliefors Test Statistic | 0.072123 |
| | | Lilliefors 5% Critical Value | 0.066596 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -0.531028 | | |
| Maximum of log data | 3.131137 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 1.247622 | 95% H-UCL | 4.750662 |
| Standard Deviation of log data | 0.658043 | 95% Chebyshev (MVUE) UCL | 5.338865 |
| Variance of log data | 0.43302 | 97.5% Chebyshev (MVUE) UCL | 5.780862 |
| | | 99% Chebyshev (MVUE) UCL | 6.649078 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 4.729771 |
| | | Adj-CLT UCL (Adjusted for skewness) | 4.78731 |
| | | Mod-t UCL (Adjusted for skewness) | 4.74092 |
| | | Jackknife UCL | 4.731945 |
| | | Standard Bootstrap UCL | 4.73504 |
| | | Bootstrap-t UCL | 4.81091 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 4.822692 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 4.729633 |
| | | BCA Bootstrap UCL | 4.949057 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 5.407767 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 5.878934 |
| | | 99% Chebyshev (Mean, Sd) UCL | 6.80445 |

General Statistics

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|----------------------------------|--------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REVProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Barium | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 176 | Lilliefors Test Statistic | 0.374583 |
| Number of Unique Samples | 155 | Lilliefors 5% Critical Value | 0.066785 |
| Minimum | 7.8 | Data not normal at 5% significance level | |
| Maximum | 1330 | | |
| Mean | 49.46608 | 95% UCL (Assuming Normal Distribution) | |
| Median | 28.35 | Student's-t UCL | 65.70899 |
| Standard Deviation | 130.313 | | |
| Variance | 16981.48 | Gamma Distribution Test | |
| Coefficient of Variation | 2.634391 | A-D Test Statistic | 12.94129 |
| Skewness | 8.708671 | A-D 5% Critical Value | 0.780261 |
| | | K-S Test Statistic | 0.195887 |
| Gamma Statistics | | K-S 5% Critical Value | 0.071682 |
| k hat | 1.135191 | Data do not follow gamma distribution | |
| k star (bias corrected) | 1.119629 | at 5% significance level | |
| Theta hat | 43.57511 | | |
| Theta star | 44.18077 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 399.5873 | Approximate Gamma UCL | 55.84611 |
| nu star | 394.1095 | Adjusted Gamma UCL | 55.90153 |
| Approx. Chi Square Value (.05) | 349.0852 | | |
| Adjusted Level of Significance | 0.048636 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 348.7392 | Lilliefors Test Statistic | 0.0736 |
| | | Lilliefors 5% Critical Value | 0.066785 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | 2.054124 | | |
| Maximum of log data | 7.192934 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 3.40005 | 95% H-UCL | 44.39337 |
| Standard Deviation of log data | 0.750705 | 95% Chebyshev (MVUE) UCL | 50.63328 |
| Variance of log data | 0.563558 | 97.5% Chebyshev (MVUE) UCL | 55.39098 |
| | | 99% Chebyshev (MVUE) UCL | 64.73655 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 65.62301 |
| | | Adj-CLT UCL (Adjusted for skewness) | 72.51282 |
| | | Mod-t UCL (Adjusted for skewness) | 66.78366 |
| | | Jackknife UCL | 65.70899 |
| | | Standard Bootstrap UCL | 65.29761 |
| | | Bootstrap-t UCL | 116.3976 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 145.8122 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 67.34148 |
| | | BCA Bootstrap UCL | 79.41727 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 92.28229 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 110.8089 |
| | | 99% Chebyshev (Mean, Sd) UCL | 147.2008 |

General Statistics

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|------------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Cadmium | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 171 | Lilliefors Test Statistic | 0.459292 |
| Number of Unique Samples | 95 | Lilliefors 5% Critical Value | 0.067754 |
| Minimum | 0.088 | Data not normal at 5% significance level | |
| Maximum | 554 | | |
| Mean | 4.425729 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.54 | Student's-t UCL | 9.792889 |
| Standard Deviation | 42.43677 | | |
| Variance | 1800.879 | Gamma Distribution Test | |
| Coefficient of Variation | 9.588649 | A-D Test Statistic | 1.#INF |
| Skewness | 12.93093 | A-D 5% Critical Value | 0.861182 |
| | | K-S Test Statistic | 0.435392 |
| Gamma Statistics | | K-S 5% Critical Value | 0.076925 |
| k hat | 0.331072 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.329163 | at 5% significance level | |
| Theta hat | 13.36787 | | |
| Theta star | 13.44542 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 113.2267 | Approximate Gamma UCL | 5.593185 |
| nu star | 112.5736 | Adjusted Gamma UCL | 5.604285 |
| Approx. Chi Square Value (.05) | 89.07631 | | |
| Adjusted Level of Significance | 0.048596 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 88.89987 | Lilliefors Test Statistic | 0.283105 |
| | | Lilliefors 5% Critical Value | 0.067754 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -2.430418 | | |
| Maximum of log data | 6.317165 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.562149 | 95% H-UCL | 1.214401 |
| Standard Deviation of log data | 1.071588 | 95% Chebyshev (MVUE) UCL | 1.451462 |
| Variance of log data | 1.1483 | 97.5% Chebyshev (MVUE) UCL | 1.643873 |
| | | 99% Chebyshev (MVUE) UCL | 2.021827 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 9.763642 |
| | | Adj-CLT UCL (Adjusted for skewness) | 13.19255 |
| | | Mod-t UCL (Adjusted for skewness) | 10.32773 |
| | | Jackknife UCL | 9.792889 |
| | | Standard Bootstrap UCL | 9.829574 |
| | | Bootstrap-t UCL | 84.60408 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 52.18276 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 10.88337 |
| | | BCA Bootstrap UCL | 17.3055 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 18.57132 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 24.69213 |
| | | 99% Chebyshev (Mean, Sd) UCL | 36.71527 |

General Statistics

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|----------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Chromium | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 176 | Lilliefors Test Statistic | 0.388656 |
| Number of Unique Samples | 155 | Lilliefors 5% Critical Value | 0.066785 |
| Minimum | 0.555 | Data not normal at 5% significance level | |
| Maximum | 1080 | | |
| Mean | 40.44634 | 95% UCL (Assuming Normal Distribution) | |
| Median | 15.35 | Student's-t UCL | 56.32323 |
| Standard Deviation | 127.3765 | | |
| Variance | 16224.78 | Gamma Distribution Test | |
| Coefficient of Variation | 3.149273 | A-D Test Statistic | 20.06878 |
| Skewness | 6.62735 | A-D 5% Critical Value | 0.802632 |
| | | K-S Test Statistic | 0.257973 |
| Gamma Statistics | | K-S 5% Critical Value | 0.072967 |
| k hat | 0.681276 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.673451 | at 5% significance level | |
| Theta hat | 59.36848 | | |
| Theta star | 60.05828 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 239.8092 | Approximate Gamma UCL | 47.37032 |
| nu star | 237.0549 | Adjusted Gamma UCL | 47.43167 |
| Approx. Chi Square Value (.05) | 202.4053 | | |
| Adjusted Level of Significance | 0.048636 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 202.1435 | Lilliefors Test Statistic | 0.108096 |
| | | Lilliefors 5% Critical Value | 0.066785 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -0.588787 | | |
| Maximum of log data | 6.984716 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 2.809519 | 95% H-UCL | 32.01386 |
| Standard Deviation of log data | 0.994979 | 95% Chebyshev (MVUE) UCL | 37.83271 |
| Variance of log data | 0.989984 | 97.5% Chebyshev (MVUE) UCL | 42.4673 |
| | | 99% Chebyshev (MVUE) UCL | 51.57107 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 56.23918 |
| | | Adj-CLT UCL (Adjusted for skewness) | 61.36422 |
| | | Mod-t UCL (Adjusted for skewness) | 57.12263 |
| | | Jackknife UCL | 56.32323 |
| | | Standard Bootstrap UCL | 55.95017 |
| | | Bootstrap-t UCL | 69.49883 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 64.53859 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 58.02065 |
| | | BCA Bootstrap UCL | 67.15739 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 82.29773 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 100.4069 |
| | | 99% Chebyshev (Mean, Sd) UCL | 135.9787 |

General Statistics

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|----------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Copper | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 176 | Lilliefors Test Statistic | 0.369561 |
| Number of Unique Samples | 149 | Lilliefors 5% Critical Value | 0.066785 |
| Minimum | 5.47 | Data not normal at 5% significance level | |
| Maximum | 744 | | |
| Mean | 35.50744 | 95% UCL (Assuming Normal Distribution) | |
| Median | 18.5 | Student's-t UCL | 45.6422 |
| Standard Deviation | 81.30873 | | |
| Variance | 6611.11 | Gamma Distribution Test | |
| Coefficient of Variation | 2.289907 | A-D Test Statistic | 16.22014 |
| Skewness | 6.318738 | A-D 5% Critical Value | 0.784349 |
| | | K-S Test Statistic | 0.244045 |
| Gamma Statistics | | K-S 5% Critical Value | 0.07192 |
| k hat | 0.986768 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.973736 | at 5% significance level | |
| Theta hat | 35.98359 | | |
| Theta star | 36.46518 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 347.3422 | Approximate Gamma UCL | 40.45362 |
| nu star | 342.7549 | Adjusted Gamma UCL | 40.4968 |
| Approx. Chi Square Value (.05) | 300.847 | | |
| Adjusted Level of Significance | 0.048636 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 300.5263 | Lilliefors Test Statistic | 0.118915 |
| | | Lilliefors 5% Critical Value | 0.066785 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | 1.699279 | | |
| Maximum of log data | 6.612041 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 2.983868 | 95% H-UCL | 31.76415 |
| Standard Deviation of log data | 0.833294 | 95% Chebyshev (MVUE) UCL | 36.68509 |
| Variance of log data | 0.694378 | 97.5% Chebyshev (MVUE) UCL | 40.48896 |
| | | 99% Chebyshev (MVUE) UCL | 47.96094 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 45.58855 |
| | | Adj-CLT UCL (Adjusted for skewness) | 48.70769 |
| | | Mod-t UCL (Adjusted for skewness) | 46.12872 |
| | | Jackknife UCL | 45.6422 |
| | | Standard Bootstrap UCL | 45.38316 |
| | | Bootstrap-t UCL | 54.25916 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 51.51134 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 46.32943 |
| | | BCA Bootstrap UCL | 53.05063 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 62.2226 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 73.78226 |
| | | 99% Chebyshev (Mean, Sd) UCL | 96.48899 |

General Statistics

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|------------------------------------|----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Lead | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 177 | Lilliefors Test Statistic | 0.46159 |
| Number of Unique Samples | 158 | Lilliefors 5% Critical Value | 0.066596 |
| Minimum | 0.53 | Data not normal at 5% significance level | |
| Maximum | 7870 | | |
| Mean | 118.9655 | 95% UCL (Assuming Normal Distribution) | |
| Median | 10.3 | Student's-t UCL | 209.082 |
| Standard Deviation | 725.0569 | | |
| Variance | 525707.4 | Gamma Distribution Test | |
| Coefficient of Variation | 6.094683 | A-D Test Statistic | 36.53592 |
| Skewness | 8.719974 | A-D 5% Critical Value | 0.865823 |
| | | K-S Test Statistic | 0.345582 |
| Gamma Statistics | | K-S 5% Critical Value | 0.075437 |
| k hat | 0.312341 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.310814 | at 5% significance level | |
| Theta hat | 380.8832 | | |
| Theta star | 382.755 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 110.5688 | Approximate Gamma UCL | 150.7802 |
| nu star | 110.028 | Adjusted Gamma UCL | 151.0728 |
| Approx. Chi Square Value (.05) | 86.81203 | | |
| Adjusted Level of Significance | 0.048644 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 86.64391 | Lilliefors Test Statistic | 0.14944 |
| | | Lilliefors 5% Critical Value | 0.066596 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -0.634878 | | |
| Maximum of log data | 8.970813 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 2.585581 | 95% H-UCL | 39.22072 |
| Standard Deviation of log data | 1.300598 | 95% Chebyshev (MVUE) UCL | 48.01921 |
| Variance of log data | 1.691555 | 97.5% Chebyshev (MVUE) UCL | 55.53458 |
| | | 99% Chebyshev (MVUE) UCL | 70.29706 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 208.6077 |
| | | Adj-CLT UCL (Adjusted for skewness) | 246.7753 |
| | | Mod-t UCL (Adjusted for skewness) | 215.0354 |
| | | Jackknife UCL | 209.082 |
| | | Standard Bootstrap UCL | 209.1901 |
| | | Bootstrap-t UCL | 324.4685 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 537.9494 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 209.6892 |
| | | BCA Bootstrap UCL | 285.2874 |
| Use 97.5% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 356.5194 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 459.3092 |
| | | 99% Chebyshev (Mean, Sd) UCL | 661.2198 |

General Statistics

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|----------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Manganese | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 176 | Lilliefors Test Statistic | 0.401864 |
| Number of Unique Samples | 128 | Lilliefors 5% Critical Value | 0.066785 |
| Minimum | 35.7 | Data not normal at 5% significance level | |
| Maximum | 13000 | | |
| Mean | 344.7983 | 95% UCL (Assuming Normal Distribution) | |
| Median | 196.5 | Student's-t UCL | 480.0167 |
| Standard Deviation | 1084.825 | | |
| Variance | 1176845 | Gamma Distribution Test | |
| Coefficient of Variation | 3.14626 | A-D Test Statistic | 1.#INF |
| Skewness | 10.21123 | A-D 5% Critical Value | 0.780038 |
| | | K-S Test Statistic | 0.289003 |
| Gamma Statistics | | K-S 5% Critical Value | 0.071669 |
| k hat | 1.143938 | Data do not follow gamma distribution | |
| k star (bias corrected) | 1.128227 | at 5% significance level | |
| Theta hat | 301.4134 | | |
| Theta star | 305.6107 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 402.6662 | Approximate Gamma UCL | 389.0831 |
| nu star | 397.1359 | Adjusted Gamma UCL | 389.4677 |
| Approx. Chi Square Value (.05) | 351.9346 | | |
| Adjusted Level of Significance | 0.048636 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 351.5871 | Lilliefors Test Statistic | 0.154466 |
| | | Lilliefors 5% Critical Value | 0.066785 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | 3.575151 | | |
| Maximum of log data | 9.472705 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 5.345969 | 95% H-UCL | 286.6988 |
| Standard Deviation of log data | 0.659864 | 95% Chebyshev (MVUE) UCL | 322.3699 |
| Variance of log data | 0.435421 | 97.5% Chebyshev (MVUE) UCL | 349.1889 |
| | | 99% Chebyshev (MVUE) UCL | 401.8695 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 479.3009 |
| | | Adj-CLT UCL (Adjusted for skewness) | 546.5529 |
| | | Mod-t UCL (Adjusted for skewness) | 490.5066 |
| | | Jackknife UCL | 480.0167 |
| | | Standard Bootstrap UCL | 479.0892 |
| | | Bootstrap-t UCL | 1036.999 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 1028.016 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 502.8199 |
| | | BCA Bootstrap UCL | 619.6432 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 701.2332 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 855.4628 |
| | | 99% Chebyshev (Mean, Sd) UCL | 1158.417 |

General Statistics

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|----------------------------------|--------------------------------------------------------------|----------------------------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REVProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Mercury | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 168 | Lilliefors Test Statistic | 0.398377 |
| Number of Unique Samples | 84 | Lilliefors 5% Critical Value | 0.068356 |
| Minimum | 0.0175 | Data not normal at 5% significance level | |
| Maximum | 6.5 | | |
| Mean | 0.171039 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0545 | Student's-t UCL | 0.247114 |
| Standard Deviation | 0.59615 | | |
| Variance | 0.355395 | Gamma Distribution Test | |
| Coefficient of Variation | 3.485471 | A-D Test Statistic | 31.26956 |
| Skewness | 8.677939 | A-D 5% Critical Value | 0.800047 |
| | | K-S Test Statistic | 0.37363 |
| Gamma Statistics | | K-S 5% Critical Value | 0.074987 |
| k hat | 0.706616 | Data do not follow gamma distribution at 5% significance level | |
| k star (bias corrected) | 0.697966 | | |
| Theta hat | 0.242053 | | |
| Theta star | 0.245053 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 237.4228 | Approximate Gamma UCL | 0.200497 |
| nu star | 234.5165 | Adjusted Gamma UCL | 0.200771 |
| Approx.Chi Square Value (.05) | 200.0594 | | |
| Adjusted Level of Significance | 0.048571 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 199.7866 | Lilliefors Test Statistic | 0.332294 |
| | | Lilliefors 5% Critical Value | 0.068356 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -4.045554 | | |
| Maximum of log data | 1.871802 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -2.620011 | 95% H-UCL | 0.12658 |
| Standard Deviation of log data | 0.903279 | 95% Chebyshev (MVUE) UCL | 0.148028 |
| Variance of log data | 0.815914 | 97.5% Chebyshev (MVUE) UCL | 0.16487 |
| | | 99% Chebyshev (MVUE) UCL | 0.197953 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.246692 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.279596 |
| | | Mod-t UCL (Adjusted for skewness) | 0.252246 |
| | | Jackknife UCL | 0.247114 |
| | | Standard Bootstrap UCL | 0.246467 |
| | | Bootstrap-t UCL | 0.403345 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.556237 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.253855 |
| | | BCA Bootstrap UCL | 0.322527 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.371522 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.458271 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.628673 |

General Statistics

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|----------------------------------|----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Nickel | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 176 | Lilliefors Test Statistic | 0.393721 |
| Number of Unique Samples | 154 | Lilliefors 5% Critical Value | 0.066785 |
| Minimum | 3.15 | Data not normal at 5% significance level | |
| Maximum | 801 | | |
| Mean | 21.34307 | 95% UCL (Assuming Normal Distribution) | |
| Median | 10.15 | Student's-t UCL | 29.75325 |
| Standard Deviation | 67.47293 | | |
| Variance | 4552.596 | Gamma Distribution Test | |
| Coefficient of Variation | 3.161351 | A-D Test Statistic | 1.#INF |
| Skewness | 10.0161 | A-D 5% Critical Value | 0.783526 |
| | | K-S Test Statistic | 0.20916 |
| Gamma Statistics | | K-S 5% Critical Value | 0.071871 |
| k hat | 1.006939 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.993563 | at 5% significance level | |
| Theta hat | 21.196 | | |
| Theta star | 21.48135 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 354.4424 | Approximate Gamma UCL | 24.28319 |
| nu star | 349.7341 | Adjusted Gamma UCL | 24.30884 |
| Approx.Chi Square Value (.05) | 307.3896 | | |
| Adjusted Level of Significance | 0.048636 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 307.0653 | Lilliefors Test Statistic | 0.105634 |
| | | Lilliefors 5% Critical Value | 0.066785 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | 1.147402 | | |
| Maximum of log data | 6.685861 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 2.487953 | 95% H-UCL | 17.99068 |
| Standard Deviation of log data | 0.760089 | 95% Chebyshev (MVUE) UCL | 20.54907 |
| Variance of log data | 0.577736 | 97.5% Chebyshev (MVUE) UCL | 22.50272 |
| | | 99% Chebyshev (MVUE) UCL | 26.34029 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 29.70873 |
| | | Adj-CLT UCL (Adjusted for skewness) | 33.81168 |
| | | Mod-t UCL (Adjusted for skewness) | 30.39323 |
| | | Jackknife UCL | 29.75325 |
| | | Standard Bootstrap UCL | 29.6877 |
| | | Bootstrap-t UCL | 59.43842 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 66.75731 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 31.38756 |
| | | BCA Bootstrap UCL | 37.3121 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 43.51227 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 53.1049 |
| | | 99% Chebyshev (Mean, Sd) UCL | 71.94776 |

General Statistics

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|--------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REVPProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Thallium | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 168 | Lilliefors Test Statistic | 0.451367 |
| Number of Unique Samples | 27 | Lilliefors 5% Critical Value | 0.068356 |
| Minimum | 0.51 | Data not normal at 5% significance level | |
| Maximum | 2 | | |
| Mean | 0.606536 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.545 | Student's-t UCL | 0.638091 |
| Standard Deviation | 0.24728 | | |
| Variance | 0.061148 | Gamma Distribution Test | |
| Coefficient of Variation | 0.407693 | A-D Test Statistic | 43.13496 |
| Skewness | 4.131219 | A-D 5% Critical Value | 0.751362 |
| | | K-S Test Statistic | 0.426636 |
| Gamma Statistics | | K-S 5% Critical Value | 0.07181 |
| k hat | 11.70057 | Data do not follow gamma distribution | |
| k star (bias corrected) | 11.4956 | at 5% significance level | |
| Theta hat | 0.051838 | | |
| Theta star | 0.052762 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 3931.392 | Approximate Gamma UCL | 0.629931 |
| nu star | 3862.522 | Adjusted Gamma UCL | 0.630135 |
| Approx. Chi Square Value (.05) | 3719.068 | | |
| Adjusted Level of Significance | 0.048571 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 3717.866 | Lilliefors Test Statistic | 0.408806 |
| | | Lilliefors 5% Critical Value | 0.068356 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -0.673345 | | |
| Maximum of log data | 0.693147 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.543333 | 95% H-UCL | 0.619641 |
| Standard Deviation of log data | 0.251376 | 95% Chebyshev (MVUE) UCL | 0.650758 |
| Variance of log data | 0.06319 | 97.5% Chebyshev (MVUE) UCL | 0.673008 |
| | | 99% Chebyshev (MVUE) UCL | 0.716714 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.637916 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.644414 |
| | | Mod-t UCL (Adjusted for skewness) | 0.639105 |
| | | Jackknife UCL | 0.638091 |
| | | Standard Bootstrap UCL | 0.6384 |
| | | Bootstrap-t UCL | 0.64788 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.641749 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.640679 |
| | | BCA Bootstrap UCL | 0.657756 |
| Use Student's-t UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.689695 |
| or Modified-t UCL | | 97.5% Chebyshev (Mean, Sd) UCL | 0.725678 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.79636 |

General Statistics

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|----------------------------------|--------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REVProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Vanadium | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 176 | Lilliefors Test Statistic | 0.36296 |
| Number of Unique Samples | 141 | Lilliefors 5% Critical Value | 0.066785 |
| Minimum | 5.39 | Data not normal at 5% significance level | |
| Maximum | 657 | | |
| Mean | 22.90869 | 95% UCL (Assuming Normal Distribution) | |
| Median | 15.45 | Student's-t UCL | 29.13767 |
| Standard Deviation | 49.97363 | | |
| Variance | 2497.363 | Gamma Distribution Test | |
| Coefficient of Variation | 2.181426 | A-D Test Statistic | 1.#INF |
| Skewness | 11.87086 | A-D 5% Critical Value | 0.76812 |
| | | K-S Test Statistic | 0.141029 |
| Gamma Statistics | | K-S 5% Critical Value | 0.07092 |
| k hat | 1.791446 | Data do not follow gamma distribution | |
| k star (bias corrected) | 1.764698 | at 5% significance level | |
| Theta hat | 12.78782 | | |
| Theta star | 12.98165 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 630.5891 | Approximate Gamma UCL | 25.21557 |
| nu star | 621.1737 | Adjusted Gamma UCL | 25.23533 |
| Approx. Chi Square Value (.05) | 564.3449 | | |
| Adjusted Level of Significance | 0.048636 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 563.903 | Lilliefors Test Statistic | 0.080344 |
| | | Lilliefors 5% Critical Value | 0.066785 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | 1.684545 | | |
| Maximum of log data | 6.487684 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 2.827161 | 95% H-UCL | 21.81536 |
| Standard Deviation of log data | 0.588137 | 95% Chebyshev (MVUE) UCL | 24.24717 |
| Variance of log data | 0.345906 | 97.5% Chebyshev (MVUE) UCL | 26.0569 |
| | | 99% Chebyshev (MVUE) UCL | 29.61176 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 29.1047 |
| | | Adj-CLT UCL (Adjusted for skewness) | 32.70626 |
| | | Mod-t UCL (Adjusted for skewness) | 29.69944 |
| | | Jackknife UCL | 29.13767 |
| | | Standard Bootstrap UCL | 29.12787 |
| | | Bootstrap-t UCL | 44.7047 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 53.62448 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 29.76835 |
| | | BCA Bootstrap UCL | 34.66483 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 39.32825 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 46.433 |
| | | 99% Chebyshev (Mean, Sd) UCL | 60.38891 |

General Statistics

| | | | |
|----------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Zinc | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 176 | Lilliefors Test Statistic | 0.430685 |
| Number of Unique Samples | 157 | Lilliefors 5% Critical Value | 0.066785 |
| Minimum | 10.3 | Data not normal at 5% significance level | |
| Maximum | 8580 | | |
| Mean | 130.2023 | 95% UCL (Assuming Normal Distribution) | |
| Median | 37.85 | Student's-t UCL | 215.7848 |
| Standard Deviation | 686.6083 | | |
| Variance | 471431 | Gamma Distribution Test | |
| Coefficient of Variation | 5.273397 | A-D Test Statistic | 1.#INF |
| Skewness | 11.13285 | A-D 5% Critical Value | 0.813352 |
| | | K-S Test Statistic | 0.315115 |
| Gamma Statistics | | K-S 5% Critical Value | 0.073514 |
| k hat | 0.571412 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.56546 | at 5% significance level | |
| Theta hat | 227.8606 | | |
| Theta star | 230.259 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 201.137 | Approximate Gamma UCL | 154.8195 |
| nu star | 199.0419 | Adjusted Gamma UCL | 155.0394 |
| Approx.Chi Square Value (.05) | 167.3931 | | |
| Adjusted Level of Significance | 0.048636 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 167.1556 | Lilliefors Test Statistic | 0.143996 |
| | | Lilliefors 5% Critical Value | 0.066785 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | 2.332144 | | |
| Maximum of log data | 9.057189 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 3.779898 | 95% H-UCL | 77.13617 |
| Standard Deviation of log data | 0.917628 | 95% Chebyshev (MVUE) UCL | 90.18929 |
| Variance of log data | 0.842041 | 97.5% Chebyshev (MVUE) UCL | 100.4299 |
| | | 99% Chebyshev (MVUE) UCL | 120.5455 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 215.3318 |
| | | Adj-CLT UCL (Adjusted for skewness) | 261.7387 |
| | | Mod-t UCL (Adjusted for skewness) | 223.0233 |
| | | Jackknife UCL | 215.7848 |
| | | Standard Bootstrap UCL | 216.2116 |
| | | Bootstrap-t UCL | 600.5119 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 433.5863 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 226.5256 |
| | | BCA Bootstrap UCL | 316.1386 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 355.7973 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 453.4124 |
| | | 99% Chebyshev (Mean, Sd) UCL | 645.1585 |

General Statistics

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|---------------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-MainSt-InputFile.xls | | |
| Variable: | Total Petroluem Hydrocarbons | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 31 | Shapiro-Wilk Test Statistic | 0.727224 |
| Number of Unique Samples | 30 | Shapiro-Wilk 5% Critical Value | 0.929 |
| Minimum | 5.45 | Data not normal at 5% significance level | |
| Maximum | 872 | | |
| Mean | 176.8048 | 95% UCL (Assuming Normal Distribution) | |
| Median | 85.1 | Student's-t UCL | 247.915 |
| Standard Deviation | 233.2728 | | |
| Variance | 54416.22 | Gamma Distribution Test | |
| Coefficient of Variation | 1.31938 | A-D Test Statistic | 0.40503 |
| Skewness | 1.913247 | A-D 5% Critical Value | 0.79636 |
| | | K-S Test Statistic | 0.090772 |
| Gamma Statistics | | K-S 5% Critical Value | 0.165047 |
| k hat | 0.652367 | Data follow gamma distribution | |
| k star (bias corrected) | 0.61074 | at 5% significance level | |
| Theta hat | 271.0204 | | |
| Theta star | 289.4927 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 40.44677 | Approximate Gamma UCL | 270.2486 |
| nu star | 37.8659 | Adjusted Gamma UCL | 276.8364 |
| Approx.Chi Square Value (.05) | 24.77302 | | |
| Adjusted Level of Significance | 0.0413 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 24.18351 | Shapiro-Wilk Test Statistic | 0.944868 |
| | | Shapiro-Wilk 5% Critical Value | 0.929 |
| Log-transformed Statistics | | Data are lognormal at 5% significance level | |
| Minimum of log data | 1.695616 | | |
| Maximum of log data | 6.770789 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 4.239377 | 95% H-UCL | 572.3854 |
| Standard Deviation of log data | 1.55731 | 95% Chebyshev (MVUE) UCL | 551.6553 |
| Variance of log data | 2.425213 | 97.5% Chebyshev (MVUE) UCL | 697.0723 |
| | | 99% Chebyshev (MVUE) UCL | 982.7158 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 245.7193 |
| | | Adj-CLT UCL (Adjusted for skewness) | 261.1028 |
| | | Mod-t UCL (Adjusted for skewness) | 250.3145 |
| | | Jackknife UCL | 247.915 |
| | | Standard Bootstrap UCL | 243.5225 |
| | | Bootstrap-t UCL | 270.6961 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 266.2797 |
| Data follow gamma distribution (0.05) | | Percentile Bootstrap UCL | 251.2645 |
| | | BCA Bootstrap UCL | 280.6371 |
| Use Approximate Gamma UCL | | 95% Chebyshev (Mean, Sd) UCL | 359.4298 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 438.4518 |
| | | 99% Chebyshev (Mean, Sd) UCL | 593.6751 |

CHROMIUM PLATING AREA SURFACE SOIL

General Statistics

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|----------------------------------------|------------------------------------------------------------------|--|--|--|--|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-CrPlating-InputFile.xls | | | | |
| Variable: | Tetrachloroethene | | | | |
| Raw Statistics | | | | | |
| Number of Valid Samples | 1 | | | | |
| Number of Unique Samples | 1 | | | | |
| Minimum | 0.0006 | | | | |
| Maximum | 0.0006 | | | | |
| Mean | 0.0006 | | | | |
| Median | 0.0006 | | | | |
| Too Few Observations To Calculate UCLs | | | | | |

General Statistics

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|----------------------------------------|------------------------------------------------------------------|---------|--|--|--|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-CrPlating-InputFile.xls | | | | |
| Variable: | Trichloroethene | | | | |
| Raw Statistics | | | | | |
| Number of Valid Samples | | 2 | | | |
| Number of Unique Samples | | 2 | | | |
| Minimum | | 0.0025 | | | |
| Maximum | | 0.006 | | | |
| Mean | | 0.00425 | | | |
| Median | | 0.00425 | | | |
| Too Few Observations To Calculate UCLs | | | | | |

General Statistics

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|--------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEPIHH 2004 REV\ProUCL\SS-CrPlating-InputFile.xls | | |
| Variable: | Chromium | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 53 | Lilliefors Test Statistic | 0.27515 |
| Number of Unique Samples | 53 | Lilliefors 5% Critical Value | 0.121701 |
| Minimum | 3.43 | Data not normal at 5% significance level | |
| Maximum | 1917 | | |
| Mean | 243.7653 | 95% UCL (Assuming Normal Distribution) | |
| Median | 59 | Student's-t UCL | 336.3232 |
| Standard Deviation | 402.3624 | | |
| Variance | 161895.5 | Gamma Distribution Test | |
| Coefficient of Variation | 1.650614 | A-D Test Statistic | 1.802273 |
| Skewness | 2.416419 | A-D 5% Critical Value | 0.813401 |
| | | K-S Test Statistic | 0.167765 |
| Gamma Statistics | | K-S 5% Critical Value | 0.128958 |
| k hat | 0.515837 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.499217 | at 5% significance level | |
| Theta hat | 472.5629 | | |
| Theta star | 488.2952 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 54.67869 | Approximate Gamma UCL | 346.7249 |
| nu star | 52.91701 | Adjusted Gamma UCL | 350.196 |
| Approx. Chi Square Value (.05) | 37.20336 | | |
| Adjusted Level of Significance | 0.045472 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 36.8346 | Lilliefors Test Statistic | 0.076173 |
| | | Lilliefors 5% Critical Value | 0.121701 |
| Log-transformed Statistics | | Data are lognormal at 5% significance level | |
| Minimum of log data | 1.23256 | | |
| Maximum of log data | 7.558517 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 4.270764 | 95% H-UCL | 570.1661 |
| Standard Deviation of log data | 1.655985 | 95% Chebyshev (MVUE) UCL | 630.5972 |
| Variance of log data | 2.742286 | 97.5% Chebyshev (MVUE) UCL | 788.2432 |
| | | 99% Chebyshev (MVUE) UCL | 1097.908 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 334.6742 |
| | | Adj-CLT UCL (Adjusted for skewness) | 354.276 |
| | | Mod-t UCL (Adjusted for skewness) | 339.3807 |
| | | Jackknife UCL | 336.3232 |
| | | Standard Bootstrap UCL | 336.5589 |
| | | Bootstrap-t UCL | 356.0647 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 360.0959 |
| Data are lognormal (0.05) | | Percentile Bootstrap UCL | 343.0911 |
| | | BCA Bootstrap UCL | 378.8174 |
| Use H-UCL | | 95% Chebyshev (Mean, Sd) UCL | 484.6761 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 588.9184 |
| | | 99% Chebyshev (Mean, Sd) UCL | 793.6822 |

General Statistics

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|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEPI\HH 2004 REV\ProUCL\SS-CrPlating-InputFile.xls | | |
| Variable: | Chromium, Hexavalent | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 21 | Shapiro-Wilk Test Statistic | 0.226491 |
| Number of Unique Samples | 21 | Shapiro-Wilk 5% Critical Value | 0.908 |
| Minimum | 0.2125 | Data not normal at 5% significance level | |
| Maximum | 2861023 | | |
| Mean | 136307.6 | 95% UCL (Assuming Normal Distribution) | |
| Median | 8.9 | Student's-t UCL | 371275.9 |
| Standard Deviation | 624310.8 | | |
| Variance | 3.9E+011 | Gamma Distribution Test | |
| Coefficient of Variation | 4.580162 | A-D Test Statistic | 5.041406 |
| Skewness | 4.582575 | A-D 5% Critical Value | 0.980612 |
| | | K-S Test Statistic | 0.426221 |
| Gamma Statistics | | K-S 5% Critical Value | 0.217733 |
| k hat | 0.088179 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.107328 | at 5% significance level | |
| Theta hat | 1545804 | | |
| Theta star | 1270008 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 3.703522 | Approximate Gamma UCL | 659545.4 |
| nu star | 4.507781 | Adjusted Gamma UCL | 752673 |
| Approx. Chi Square Value (.05) | 0.931618 | | |
| Adjusted Level of Significance | 0.0383 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 0.81635 | Shapiro-Wilk Test Statistic | 0.836583 |
| | | Shapiro-Wilk 5% Critical Value | 0.908 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -1.548813 | | |
| Maximum of log data | 14.86669 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 2.469669 | 95% H-UCL | 5171296 |
| Standard Deviation of log data | 3.729685 | 95% Chebyshev (MVUE) UCL | 12869.87 |
| Variance of log data | 13.91055 | 97.5% Chebyshev (MVUE) UCL | 17302.56 |
| | | 99% Chebyshev (MVUE) UCL | 26009.73 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 360395.5 |
| | | Adj-CLT UCL (Adjusted for skewness) | 505965.4 |
| | | Mod-t UCL (Adjusted for skewness) | 393981.8 |
| | | Jackknife UCL | 371275.9 |
| | | Standard Bootstrap UCL | 352164.7 |
| | | Bootstrap-t UCL | 8.1E+008 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 7.8E+008 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 408761.5 |
| | | BCA Bootstrap UCL | 545067.5 |
| Use Hall's Bootstrap UCL | | 95% Chebyshev (Mean, Sd) UCL | 730145.6 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 987099.7 |
| Recommended UCL exceeds the maximum c | | 99% Chebyshev (Mean, Sd) UCL | 1491836 |
| In case Hall's Bootstrap method yields an erratic, unreasonably large UCL value, use 99% Chebyshev (Mean, Sd) UCL | | | |

used footnote 88% Cr

General Statistics

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|--------------------------------|-------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMYSAEPI\HH 2004 REV\ProUCL\SS-CrPlating-InputFile.xls | | |
| Variable: | Manganese | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 19 | Shapiro-Wilk Test Statistic | 0.947022 |
| Number of Unique Samples | 17 | Shapiro-Wilk 5% Critical Value | 0.901 |
| Minimum | 87.4 | Data are normal at 5% significance level | |
| Maximum | 264 | | |
| Mean | 191.4421 | 95% UCL (Assuming Normal Distribution) | |
| Median | 203 | Student's-t UCL | 209.8175 |
| Standard Deviation | 46.18997 | | |
| Variance | 2133.514 | Gamma Distribution Test | |
| Coefficient of Variation | 0.241274 | A-D Test Statistic | 0.586839 |
| Skewness | -0.52816 | A-D 5% Critical Value | 0.740678 |
| | | K-S Test Statistic | 0.150943 |
| Gamma Statistics | | K-S 5% Critical Value | 0.198327 |
| k hat | 15.54418 | Data follow gamma distribution | |
| k star (bias corrected) | 13.12492 | at 5% significance level | |
| Theta hat | 12.316 | | |
| Theta star | 14.58615 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 590.6787 | Approximate Gamma UCL | 213.1521 |
| nu star | 498.747 | Adjusted Gamma UCL | 215.1706 |
| Approx. Chi Square Value (.05) | 447.9485 | | |
| Adjusted Level of Significance | 0.03687 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 443.7463 | Shapiro-Wilk Test Statistic | 0.893754 |
| | | Shapiro-Wilk 5% Critical Value | 0.901 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | 4.470495 | | |
| Maximum of log data | 5.575949 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 5.222074 | 95% H-UCL | 216.7005 |
| Standard Deviation of log data | 0.27487 | 95% Chebyshev (MVUE) UCL | 245.4488 |
| Variance of log data | 0.075553 | 97.5% Chebyshev (MVUE) UCL | 268.5509 |
| | | 99% Chebyshev (MVUE) UCL | 313.9305 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 208.8721 |
| | | Adj-CLT UCL (Adjusted for skewness) | 207.5002 |
| | | Mod-t UCL (Adjusted for skewness) | 209.6035 |
| | | Jackknife UCL | 209.8175 |
| | | Standard Bootstrap UCL | 207.991 |
| | | Bootstrap-t UCL | 208.8748 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 207.9449 |
| Data are normal (0.05) | | Percentile Bootstrap UCL | 207.6526 |
| | | BCA Bootstrap UCL | 204.1789 |
| Use Student's-t UCL | | 95% Chebyshev (Mean, Sd) UCL | 237.6321 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 257.6185 |
| | | 99% Chebyshev (Mean, Sd) UCL | 296.878 |

General Statistics

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|---------------------------------------|-------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-CrPlating-InputFile.xls | | |
| Variable: | Nickel | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 8 | Shapiro-Wilk Test Statistic | 0.634362 |
| Number of Unique Samples | 8 | Shapiro-Wilk 5% Critical Value | 0.818 |
| Minimum | 2.3 | Data not normal at 5% significance level | |
| Maximum | 223 | | |
| Mean | 45.74875 | 95% UCL (Assuming Normal Distribution) | |
| Median | 11.845 | Student's-t UCL | 96.0405 |
| Standard Deviation | 75.08084 | | |
| Variance | 5637.132 | Gamma Distribution Test | |
| Coefficient of Variation | 1.641156 | A-D Test Statistic | 0.557435 |
| Skewness | 2.389603 | A-D 5% Critical Value | 0.753201 |
| | | K-S Test Statistic | 0.242933 |
| Gamma Statistics | | K-S 5% Critical Value | 0.306368 |
| k hat | 0.632965 | Data follow gamma distribution | |
| k star (bias corrected) | 0.478937 | at 5% significance level | |
| Theta hat | 72.27687 | | |
| Theta star | 95.52151 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 10.12744 | Approximate Gamma UCL | 137.9774 |
| nu star | 7.662986 | Adjusted Gamma UCL | 188.5883 |
| Approx. Chi Square Value (.05) | 2.540792 | | |
| Adjusted Level of Significance | 0.01946 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 1.858928 | Shapiro-Wilk Test Statistic | 0.956001 |
| | | Shapiro-Wilk 5% Critical Value | 0.818 |
| Log-transformed Statistics | | Data are lognormal at 5% significance level | |
| Minimum of log data | 0.832909 | | |
| Maximum of log data | 5.407172 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 2.854609 | 95% H-UCL | 673.2291 |
| Standard Deviation of log data | 1.454414 | 95% Chebyshev (MVUE) UCL | 132.153 |
| Variance of log data | 2.115319 | 97.5% Chebyshev (MVUE) UCL | 171.8048 |
| | | 99% Chebyshev (MVUE) UCL | 249.6929 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 89.41153 |
| | | Adj-CLT UCL (Adjusted for skewness) | 113.3748 |
| | | Mod-t UCL (Adjusted for skewness) | 99.77827 |
| | | Jackknife UCL | 96.0405 |
| | | Standard Bootstrap UCL | 87.55788 |
| | | Bootstrap-t UCL | 336.9344 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 284.4284 |
| Data follow gamma distribution (0.05) | | Percentile Bootstrap UCL | 92.42375 |
| | | BCA Bootstrap UCL | 86.61125 |
| Use Approximate Gamma UCL | | 95% Chebyshev (Mean, Sd) UCL | 161.4561 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 211.5227 |
| | | 99% Chebyshev (Mean, Sd) UCL | 309.869 |

General Statistics

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|----------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-CrPlating-InputFile.xls | | |
| Variable: | Cyanide, Total | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 24 | Shapiro-Wilk Test Statistic | 0.255146 |
| Number of Unique Samples | 19 | Shapiro-Wilk 5% Critical Value | 0.916 |
| Minimum | 0.072 | Data not normal at 5% significance level | |
| Maximum | 230 | | |
| Mean | 11.26154 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.20525 | Student's-t UCL | 27.63469 |
| Standard Deviation | 46.80149 | | |
| Variance | 2190.379 | Gamma Distribution Test | |
| Coefficient of Variation | 4.155869 | A-D Test Statistic | 5.47252 |
| Skewness | 4.830005 | A-D 5% Critical Value | 0.885318 |
| | | K-S Test Statistic | 0.439107 |
| Gamma Statistics | | K-S 5% Critical Value | 0.196282 |
| k hat | 0.219845 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.220142 | at 5% significance level | |
| Theta hat | 51.22494 | | |
| Theta star | 51.1558 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 10.55255 | Approximate Gamma UCL | 27.68586 |
| nu star | 10.56682 | Adjusted Gamma UCL | 29.60317 |
| Approx. Chi Square Value (.05) | 4.298174 | | |
| Adjusted Level of Significance | 0.0392 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 4.019795 | Shapiro-Wilk Test Statistic | 0.671406 |
| | | Shapiro-Wilk 5% Critical Value | 0.916 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -2.631089 | | |
| Maximum of log data | 5.438079 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.876611 | 95% H-UCL | 15.13246 |
| Standard Deviation of log data | 1.973716 | 95% Chebyshev (MVUE) UCL | 7.774841 |
| Variance of log data | 3.895555 | 97.5% Chebyshev (MVUE) UCL | 10.10476 |
| | | 99% Chebyshev (MVUE) UCL | 14.68144 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 26.97534 |
| | | Adj-CLT UCL (Adjusted for skewness) | 37.03948 |
| | | Mod-t UCL (Adjusted for skewness) | 29.20449 |
| | | Jackknife UCL | 27.63469 |
| | | Standard Bootstrap UCL | 26.72734 |
| | | Bootstrap-t UCL | 231.9673 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 233.4138 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 29.83425 |
| | | BCA Bootstrap UCL | 40.98306 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 52.90347 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 70.92197 |
| | | 99% Chebyshev (Mean, Sd) UCL | 106.3158 |

SOUTH LOT AREA SURFACE SOIL

General Statistics

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|----------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | 1,1,1-Trichloroethane | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 27 | Shapiro-Wilk Test Statistic | 0.210387 |
| Number of Unique Samples | 7 | Shapiro-Wilk 5% Critical Value | 0.923 |
| Minimum | 0.002 | Data not normal at 5% significance level | |
| Maximum | 0.32 | | |
| Mean | 0.014759 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.034787 |
| Standard Deviation | 0.061015 | | |
| Variance | 0.003723 | Gamma Distribution Test | |
| Coefficient of Variation | 4.134028 | A-D Test Statistic | 8.275329 |
| Skewness | 5.192806 | A-D 5% Critical Value | 0.820862 |
| | | K-S Test Statistic | 0.478381 |
| Gamma Statistics | | K-S 5% Critical Value | 0.179309 |
| k hat | 0.441017 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.416706 | at 5% significance level | |
| Theta hat | 0.033466 | | |
| Theta star | 0.035419 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 23.8149 | Approximate Gamma UCL | 0.026122 |
| nu star | 22.50213 | Adjusted Gamma UCL | 0.027126 |
| Approx. Chi Square Value (.05) | 12.7138 | | |
| Adjusted Level of Significance | 0.0401 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 12.24331 | Shapiro-Wilk Test Statistic | 0.459452 |
| | | Shapiro-Wilk 5% Critical Value | 0.923 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -6.214608 | | |
| Maximum of log data | -1.139434 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.68484 | 95% H-UCL | 0.008522 |
| Standard Deviation of log data | 0.960787 | 95% Chebyshev (MVUE) UCL | 0.010069 |
| Variance of log data | 0.923111 | 97.5% Chebyshev (MVUE) UCL | 0.012149 |
| | | 99% Chebyshev (MVUE) UCL | 0.016234 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.034074 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.046613 |
| | | Mod-t UCL (Adjusted for skewness) | 0.036743 |
| | | Jackknife UCL | 0.034787 |
| | | Standard Bootstrap UCL | 0.033758 |
| | | Bootstrap-t UCL | 1.066482 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.449625 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.038185 |
| | | BCA Bootstrap UCL | 0.050463 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.065943 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.08809 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.131594 |

General Statistics

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|----------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | 1,1,2-Trichloroethane | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 28 | Shapiro-Wilk Test Statistic | 0.80018 |
| Number of Unique Samples | 8 | Shapiro-Wilk 5% Critical Value | 0.924 |
| Minimum | 0.0003 | Data not normal at 5% significance level | |
| Maximum | 0.007 | | |
| Mean | 0.002986 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.003443 |
| Standard Deviation | 0.001419 | | |
| Variance | 2.01E-006 | Gamma Distribution Test | |
| Coefficient of Variation | 0.475299 | A-D Test Statistic | 2.138344 |
| Skewness | 1.435766 | A-D 5% Critical Value | 0.749549 |
| | | K-S Test Statistic | 0.284432 |
| Gamma Statistics | | K-S 5% Critical Value | 0.166073 |
| k hat | 4.129408 | Data do not follow gamma distribution | |
| k star (bias corrected) | 3.710781 | at 5% significance level | |
| Theta hat | 0.000723 | | |
| Theta star | 0.000805 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 231.2469 | Approximate Gamma UCL | 0.003537 |
| nu star | 207.8038 | Adjusted Gamma UCL | 0.003574 |
| Approx. Chi Square Value (.05) | 175.4394 | | |
| Adjusted Level of Significance | 0.0404 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 173.6033 | Shapiro-Wilk Test Statistic | 0.752786 |
| | | Shapiro-Wilk 5% Critical Value | 0.924 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -8.111728 | | |
| Maximum of log data | -4.961845 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.939858 | 95% H-UCL | 0.003908 |
| Standard Deviation of log data | 0.582037 | 95% Chebyshev (MVUE) UCL | 0.004666 |
| Variance of log data | 0.338768 | 97.5% Chebyshev (MVUE) UCL | 0.005345 |
| | | 99% Chebyshev (MVUE) UCL | 0.006679 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.003427 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.003505 |
| | | Mod-t UCL (Adjusted for skewness) | 0.003455 |
| | | Jackknife UCL | 0.003443 |
| | | Standard Bootstrap UCL | 0.003416 |
| | | Bootstrap-t UCL | 0.00362 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.003832 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.003446 |
| | | BCA Bootstrap UCL | 0.003654 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.004155 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.004661 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.005654 |

General Statistics

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|----------------------------------|--------------------------------------|--------------------------------------------|---------------------------------------------|-----------|--------------------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProU | | | Variable: | 1,1-Dichloroethane |
| Variable: | 1,1-Dichloroethane | | | | |
| Raw Statistics | | | Normal Distribution Test | | |
| Number of Valid Samples | 28 | Shapiro-Wilk Test Statistic | | 0.218617 | |
| Number of Unique Samples | 8 | Shapiro-Wilk 5% Critical Value | | 0.924 | |
| Minimum | 0.0004 | Data not normal at 5% significance level | | | |
| Maximum | 0.15 | | | | |
| Mean | 0.00795 | 95% UCL (Assuming Normal Distribution) | | | |
| Median | 0.0025 | Student's-t UCL | | 0.016916 | |
| Standard Deviation | 0.027854 | | | | |
| Variance | 0.000776 | Gamma Distribution Test | | | |
| Coefficient of Variation | 3.503598 | A-D Test Statistic | | 7.136885 | |
| Skewness | 5.282645 | A-D 5% Critical Value | | 0.799764 | |
| | | K-S Test Statistic | | 0.446901 | |
| | | K-S 5% Critical Value | | 0.173681 | |
| Gamma Statistics | | | Data do not follow gamma distribution | | |
| k hat | 0.602556 | at 5% significance level | | | |
| k star (bias corrected) | 0.561806 | | | | |
| Theta hat | 0.013194 | | | | |
| Theta star | 0.014151 | 95% UCLs (Assuming Gamma Distribution) | | | |
| nu hat | 33.74316 | Approximate Gamma UCL | | 0.012733 | |
| nu star | 31.46115 | Adjusted Gamma UCL | | 0.013119 | |
| Approx.Chi Square Value (.05) | 19.64314 | | | | |
| Adjusted Level of Significance | 0.0404 | Lognormal Distribution Test | | | |
| Adjusted Chi Square Value | 19.06518 | Shapiro-Wilk Test Statistic | | 0.61282 | |
| | | Shapiro-Wilk 5% Critical Value | | 0.924 | |
| Log-transformed Statistics | | | Data not lognormal at 5% significance level | | |
| Minimum of log data | -7.824046 | | | | |
| Maximum of log data | -1.89712 | 95% UCLs (Assuming Lognormal Distribution) | | | |
| Mean of log data | -5.859365 | 95% H-UCL | | 0.006616 | |
| Standard Deviation of log data | 0.918907 | 95% Chebyshev (MVUE) UCL | | 0.007897 | |
| Variance of log data | 0.84439 | 97.5% Chebyshev (MVUE) UCL | | 0.009469 | |
| | | 99% Chebyshev (MVUE) UCL | | 0.012558 | |
| | | | 95% Non-parametric UCLs | | |
| | | CLT UCL | | 0.016608 | |
| | | Adj-CLT UCL (Adjusted for skewness) | | 0.022223 | |
| | | Mod-t UCL (Adjusted for skewness) | | 0.017792 | |
| | | Jackknife UCL | | 0.016916 | |
| | | Standard Bootstrap UCL | | 0.016294 | |
| | | Bootstrap-t UCL | | 0.213067 | |
| | | Hall's Bootstrap UCL | | 0.096178 | |
| RECOMMENDATION | | | Percentile Bootstrap UCL | | |
| Data are Non-parametric (0.05) | | | BCA Bootstrap UCL | | 0.02385 |
| Use 95% Chebyshev (Mean, Sd) UCL | | | 95% Chebyshev (Mean, Sd) UCL | | 0.030895 |
| | | | 97.5% Chebyshev (Mean, Sd) UCL | | 0.040823 |
| | | | 99% Chebyshev (Mean, Sd) UCL | | 0.060325 |

General Statistics

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|--------------------------------|----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMYSAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | 1,1-Dichloroethene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 27 | Shapiro-Wilk Test Statistic | 0.797449 |
| Number of Unique Samples | 4 | Shapiro-Wilk 5% Critical Value | 0.923 |
| Minimum | 0.002 | Data not normal at 5% significance level | |
| Maximum | 0.004 | | |
| Mean | 0.002833 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.003042 |
| Standard Deviation | 0.000635 | | |
| Variance | 4.04E-007 | Gamma Distribution Test | |
| Coefficient of Variation | 0.22429 | A-D Test Statistic | 2.126249 |
| Skewness | 0.930667 | A-D 5% Critical Value | 0.743912 |
| | | K-S Test Statistic | 0.287663 |
| Gamma Statistics | | K-S 5% Critical Value | 0.167821 |
| k hat | 22.48358 | Data do not follow gamma distribution | |
| k star (bias corrected) | 20.0101 | at 5% significance level | |
| Theta hat | 0.000126 | | |
| Theta star | 0.000142 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 1214.114 | Approximate Gamma UCL | 0.003046 |
| nu star | 1080.545 | Adjusted Gamma UCL | 0.00306 |
| Approx. Chi Square Value (.05) | 1005.218 | | |
| Adjusted Level of Significance | 0.0401 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 1000.587 | Shapiro-Wilk Test Statistic | 0.83653 |
| | | Shapiro-Wilk 5% Critical Value | 0.923 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -6.214608 | | |
| Maximum of log data | -5.521461 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.888705 | 95% H-UCL | 0.003049 |
| Standard Deviation of log data | 0.211972 | 95% Chebyshev (MVUE) UCL | 0.003339 |
| Variance of log data | 0.044932 | 97.5% Chebyshev (MVUE) UCL | 0.003558 |
| | | 99% Chebyshev (MVUE) UCL | 0.003989 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.003034 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.003058 |
| | | Mod-t UCL (Adjusted for skewness) | 0.003046 |
| | | Jackknife UCL | 0.003042 |
| | | Standard Bootstrap UCL | N/R |
| | | Bootstrap-t UCL | N/R |
| RECOMMENDATION | | Hall's Bootstrap UCL | N/R |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | N/R |
| | | BCA Bootstrap UCL | N/R |
| Use Student's-t UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.003366 |
| or Modified-t UCL | | 97.5% Chebyshev (Mean, Sd) UCL | 0.003597 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.00405 |

General Statistics

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|--------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Cis-1,2-Dichloroethene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 6 | Shapiro-Wilk Test Statistic | 0.849849 |
| Number of Unique Samples | 4 | Shapiro-Wilk 5% Critical Value | 0.788 |
| Minimum | 0.001 | Data are normal at 5% significance level | |
| Maximum | 0.003 | | |
| Mean | 0.002083 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.00225 | Student's-t UCL | 0.002838 |
| Standard Deviation | 0.000917 | | |
| Variance | 8.42E-007 | Gamma Distribution Test | |
| Coefficient of Variation | 0.440363 | A-D Test Statistic | 0.56406 |
| Skewness | -0.361538 | A-D 5% Critical Value | 0.69806 |
| | | K-S Test Statistic | 0.242407 |
| Gamma Statistics | | K-S 5% Critical Value | 0.332779 |
| k hat | 5.184746 | Data follow gamma distribution | |
| k star (bias corrected) | 2.703484 | at 5% significance level | |
| Theta hat | 0.000402 | | |
| Theta star | 0.000771 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 62.21695 | Approximate Gamma UCL | 0.00331 |
| nu star | 32.44181 | Adjusted Gamma UCL | 0.00396 |
| Approx. Chi Square Value (.05) | 20.4206 | | |
| Adjusted Level of Significance | 0.01222 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 17.06681 | Shapiro-Wilk Test Statistic | 0.811179 |
| | | Shapiro-Wilk 5% Critical Value | 0.788 |
| Log-transformed Statistics | | Data are lognormal at 5% significance level | |
| Minimum of log data | -6.907755 | | |
| Maximum of log data | -5.809143 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -6.273312 | 95% H-UCL | 0.004039 |
| Standard Deviation of log data | 0.513581 | 95% Chebyshev (MVUE) UCL | 0.004019 |
| Variance of log data | 0.263765 | 97.5% Chebyshev (MVUE) UCL | 0.004849 |
| | | 99% Chebyshev (MVUE) UCL | 0.006479 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.002699 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.00264 |
| | | Mod-t UCL (Adjusted for skewness) | 0.002829 |
| | | Jackknife UCL | 0.002838 |
| | | Standard Bootstrap UCL | N/R |
| | | Bootstrap-t UCL | N/R |
| RECOMMENDATION | | Hall's Bootstrap UCL | N/R |
| Data are normal (0.05) | | Percentile Bootstrap UCL | N/R |
| | | BCA Bootstrap UCL | N/R |
| Use Student's-t UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.003716 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.004422 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.00581 |

General Statistics

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|--------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | 1,2-Dichloroethene (total) | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 22 | Shapiro-Wilk Test Statistic | 0.806841 |
| Number of Unique Samples | 4 | Shapiro-Wilk 5% Critical Value | 0.911 |
| Minimum | 0.002 | Data not normal at 5% significance level | |
| Maximum | 0.004 | | |
| Mean | 0.002909 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.003153 |
| Standard Deviation | 0.000666 | | |
| Variance | 4.44E-007 | Gamma Distribution Test | |
| Coefficient of Variation | 0.228981 | A-D Test Statistic | 1.730368 |
| Skewness | 0.763425 | A-D 5% Critical Value | 0.740449 |
| | | K-S Test Statistic | 0.274608 |
| Gamma Statistics | | K-S 5% Critical Value | 0.184899 |
| k hat | 21.36979 | Data do not follow gamma distribution | |
| k star (bias corrected) | 18.48603 | at 5% significance level | |
| Theta hat | 0.000136 | | |
| Theta star | 0.000157 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 940.2708 | Approximate Gamma UCL | 0.003163 |
| nu star | 813.3854 | Adjusted Gamma UCL | 0.003182 |
| Approx. Chi Square Value (.05) | 748.1858 | | |
| Adjusted Level of Significance | 0.0386 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 743.5287 | Shapiro-Wilk Test Statistic | 0.841783 |
| | | Shapiro-Wilk 5% Critical Value | 0.911 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -6.214608 | | |
| Maximum of log data | -5.521461 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.863495 | 95% H-UCL | 0.003169 |
| Standard Deviation of log data | 0.21931 | 95% Chebyshev (MVUE) UCL | 0.003504 |
| Variance of log data | 0.048097 | 97.5% Chebyshev (MVUE) UCL | 0.003763 |
| | | 99% Chebyshev (MVUE) UCL | 0.00427 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.003143 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.003167 |
| | | Mod-t UCL (Adjusted for skewness) | 0.003157 |
| | | Jackknife UCL | 0.003153 |
| | | Standard Bootstrap UCL | N/R |
| | | Bootstrap-t UCL | N/R |
| RECOMMENDATION | | Hall's Bootstrap UCL | N/R |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | N/R |
| | | BCA Bootstrap UCL | N/R |
| Use Student's-t UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.003528 |
| or Modified-t UCL | | 97.5% Chebyshev (Mean, Sd) UCL | 0.003796 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.004322 |

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General Statistics

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|----------------------------------|-----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Tetrachloroethene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 28 | Shapiro-Wilk Test Statistic | 0.718898 |
| Number of Unique Samples | 10 | Shapiro-Wilk 5% Critical Value | 0.924 |
| Minimum | 0.0006 | Data not normal at 5% significance level | |
| Maximum | 0.013 | | |
| Mean | 0.003104 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0025 | Student's-t UCL | 0.003898 |
| Standard Deviation | 0.002468 | | |
| Variance | 6.09E-006 | Gamma Distribution Test | |
| Coefficient of Variation | 0.795339 | A-D Test Statistic | 0.996526 |
| Skewness | 2.693245 | A-D 5% Critical Value | 0.756951 |
| | | K-S Test Statistic | 0.180873 |
| Gamma Statistics | | K-S 5% Critical Value | 0.167328 |
| k hat | 2.236873 | Data do not follow gamma distribution | |
| k star (bias corrected) | 2.021018 | at 5% significance level | |
| Theta hat | 0.001387 | | |
| Theta star | 0.001536 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 125.2649 | Approximate Gamma UCL | 0.00392 |
| nu star | 113.177 | Adjusted Gamma UCL | 0.003977 |
| Approx. Chi Square Value (.05) | 89.6135 | | |
| Adjusted Level of Significance | 0.0404 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 88.31764 | Shapiro-Wilk Test Statistic | 0.917288 |
| | | Shapiro-Wilk 5% Critical Value | 0.924 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -7.418581 | | |
| Maximum of log data | -4.342806 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -6.015077 | 95% H-UCL | 0.00426 |
| Standard Deviation of log data | 0.719663 | 95% Chebyshev (MVUE) UCL | 0.005136 |
| Variance of log data | 0.517915 | 97.5% Chebyshev (MVUE) UCL | 0.006006 |
| | | 99% Chebyshev (MVUE) UCL | 0.007713 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.003871 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.004125 |
| | | Mod-t UCL (Adjusted for skewness) | 0.003938 |
| | | Jackknife UCL | 0.003898 |
| | | Standard Bootstrap UCL | 0.003851 |
| | | Bootstrap-t UCL | 0.004439 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.008102 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.003946 |
| | | BCA Bootstrap UCL | 0.004532 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.005137 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.006017 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.007745 |

General Statistics

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|----------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMYSAEPI\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Trichloroethene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 29 | Shapiro-Wilk Test Statistic | 0.241338 |
| Number of Unique Samples | 13 | Shapiro-Wilk 5% Critical Value | 0.926 |
| Minimum | 0.0008 | Data not normal at 5% significance level | |
| Maximum | 0.61 | | |
| Mean | 0.027438 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.003 | Student's-t UCL | 0.063068 |
| Standard Deviation | 0.112791 | | |
| Variance | 0.012722 | Gamma Distribution Test | |
| Coefficient of Variation | 4.110783 | A-D Test Statistic | 6.39837 |
| Skewness | 5.276668 | A-D 5% Critical Value | 0.844302 |
| | | K-S Test Statistic | 0.427778 |
| Gamma Statistics | | K-S 5% Critical Value | 0.175475 |
| k hat | 0.35319 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.339642 | at 5% significance level | |
| Theta hat | 0.077686 | | |
| Theta star | 0.080785 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 20.48504 | Approximate Gamma UCL | 0.050856 |
| nu star | 19.69923 | Adjusted Gamma UCL | 0.052835 |
| Approx. Chi Square Value (.05) | 10.62824 | | |
| Adjusted Level of Significance | 0.0407 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 10.23014 | Shapiro-Wilk Test Statistic | 0.732943 |
| | | Shapiro-Wilk 5% Critical Value | 0.926 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -7.130899 | | |
| Maximum of log data | -0.494296 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -5.496912 | 95% H-UCL | 0.020163 |
| Standard Deviation of log data | 1.322721 | 95% Chebyshev (MVUE) UCL | 0.021516 |
| Variance of log data | 1.749592 | 97.5% Chebyshev (MVUE) UCL | 0.02679 |
| | | 99% Chebyshev (MVUE) UCL | 0.037148 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.061889 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.083818 |
| | | Mod-t UCL (Adjusted for skewness) | 0.066488 |
| | | Jackknife UCL | 0.063068 |
| | | Standard Bootstrap UCL | 0.061118 |
| | | Bootstrap-t UCL | 0.411835 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.399042 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.067928 |
| | | BCA Bootstrap UCL | 0.09501 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.118734 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.158238 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.235836 |

General Statistics

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|----------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | 2-Methylnaphthalene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 30 | Shapiro-Wilk Test Statistic | 0.577775 |
| Number of Unique Samples | 29 | Shapiro-Wilk 5% Critical Value | 0.927 |
| Minimum | 0.015 | Data not normal at 5% significance level | |
| Maximum | 16 | | |
| Mean | 1.8381 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.188 | Student's-t UCL | 2.874509 |
| Standard Deviation | 3.340918 | | |
| Variance | 11.16174 | Gamma Distribution Test | |
| Coefficient of Variation | 1.817593 | A-D Test Statistic | 2.890148 |
| Skewness | 2.990074 | A-D 5% Critical Value | 0.81408 |
| | | K-S Test Statistic | 0.33381 |
| Gamma Statistics | | K-S 5% Critical Value | 0.16967 |
| k hat | 0.477917 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.452348 | at 5% significance level | |
| Theta hat | 3.846064 | | |
| Theta star | 4.063468 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 28.67503 | Approximate Gamma UCL | 3.06834 |
| nu star | 27.14086 | Adjusted Gamma UCL | 3.16293 |
| Approx. Chi Square Value (.05) | 16.25883 | | |
| Adjusted Level of Significance | 0.041 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 15.77259 | Shapiro-Wilk Test Statistic | 0.857748 |
| | | Shapiro-Wilk 5% Critical Value | 0.927 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -4.199705 | | |
| Maximum of log data | 2.772589 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.72972 | 95% H-UCL | 5.614887 |
| Standard Deviation of log data | 1.678337 | 95% Chebyshev (MVUE) UCL | 4.866415 |
| Variance of log data | 2.816815 | 97.5% Chebyshev (MVUE) UCL | 6.201077 |
| | | 99% Chebyshev (MVUE) UCL | 8.822762 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 2.841404 |
| | | Adj-CLT UCL (Adjusted for skewness) | 3.197205 |
| | | Mod-t UCL (Adjusted for skewness) | 2.930006 |
| | | Jackknife UCL | 2.874509 |
| | | Standard Bootstrap UCL | 2.85689 |
| | | Bootstrap-t UCL | 3.617186 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 4.827667 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 2.852917 |
| | | BCA Bootstrap UCL | 2.7483 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 4.496878 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 5.647333 |
| | | 99% Chebyshev (Mean, Sd) UCL | 7.90718 |

General Statistics

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|----------------------------------|-----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Benzo[a]anthracene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 32 | Shapiro-Wilk Test Statistic | 0.523983 |
| Number of Unique Samples | 32 | Shapiro-Wilk 5% Critical Value | 0.93 |
| Minimum | 0.084 | Data not normal at 5% significance level | |
| Maximum | 39 | | |
| Mean | 4.054938 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.37675 | Student's-t UCL | 6.612106 |
| Standard Deviation | 8.531626 | | |
| Variance | 72.78865 | Gamma Distribution Test | |
| Coefficient of Variation | 2.104009 | A-D Test Statistic | 2.734022 |
| Skewness | 3.060923 | A-D 5% Critical Value | 0.832015 |
| | | K-S Test Statistic | 0.253613 |
| Gamma Statistics | | K-S 5% Critical Value | 0.166473 |
| k hat | 0.402736 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.385813 | at 5% significance level | |
| Theta hat | 10.06846 | | |
| Theta star | 10.51011 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 25.77513 | Approximate Gamma UCL | 6.965492 |
| nu star | 24.69205 | Adjusted Gamma UCL | 7.176205 |
| Approx. Chi Square Value (.05) | 14.37439 | | |
| Adjusted Level of Significance | 0.0416 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 13.95232 | Shapiro-Wilk Test Statistic | 0.865633 |
| | | Shapiro-Wilk 5% Critical Value | 0.93 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -2.476938 | | |
| Maximum of log data | 3.663562 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.232188 | 95% H-UCL | 12.15945 |
| Standard Deviation of log data | 1.792844 | 95% Chebyshev (MVUE) UCL | 9.98296 |
| Variance of log data | 3.21429 | 97.5% Chebyshev (MVUE) UCL | 12.77895 |
| | | 99% Chebyshev (MVUE) UCL | 18.27113 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 6.535694 |
| | | Adj-CLT UCL (Adjusted for skewness) | 7.40769 |
| | | Mod-t UCL (Adjusted for skewness) | 6.74812 |
| | | Jackknife UCL | 6.612106 |
| | | Standard Bootstrap UCL | 6.55283 |
| | | Bootstrap-t UCL | 9.503833 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 7.695617 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 6.641719 |
| | | BCA Bootstrap UCL | 6.129297 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 10.629 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 13.4736 |
| | | 99% Chebyshev (Mean, Sd) UCL | 19.06127 |

General Statistics

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|----------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Benzo[a]pyrene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 32 | Shapiro-Wilk Test Statistic | 0.487122 |
| Number of Unique Samples | 32 | Shapiro-Wilk 5% Critical Value | 0.93 |
| Minimum | 0.074 | Data not normal at 5% significance level | |
| Maximum | 32 | | |
| Mean | 2.926419 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.3415 | Student's-t UCL | 4.861986 |
| Standard Deviation | 6.457742 | | |
| Variance | 41.70243 | Gamma Distribution Test | |
| Coefficient of Variation | 2.206705 | A-D Test Statistic | 2.520746 |
| Skewness | 3.630274 | A-D 5% Critical Value | 0.826531 |
| | | K-S Test Statistic | 0.240425 |
| Gamma Statistics | | K-S 5% Critical Value | 0.165938 |
| k hat | 0.427394 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.408159 | at 5% significance level | |
| Theta hat | 6.84712 | | |
| Theta star | 7.169796 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 27.35322 | Approximate Gamma UCL | 4.940937 |
| nu star | 26.12219 | Adjusted Gamma UCL | 5.085393 |
| Approx. Chi Square Value (.05) | 15.47166 | | |
| Adjusted Level of Significance | 0.0416 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 15.03217 | Shapiro-Wilk Test Statistic | 0.88693 |
| | | Shapiro-Wilk 5% Critical Value | 0.93 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -2.60369 | | |
| Maximum of log data | 3.465736 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.449593 | 95% H-UCL | 7.715499 |
| Standard Deviation of log data | 1.708851 | 95% Chebyshev (MVUE) UCL | 6.780514 |
| Variance of log data | 2.92017 | 97.5% Chebyshev (MVUE) UCL | 8.639525 |
| | | 99% Chebyshev (MVUE) UCL | 12.29119 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 4.804148 |
| | | Adj-CLT UCL (Adjusted for skewness) | 5.586947 |
| | | Mod-t UCL (Adjusted for skewness) | 4.984087 |
| | | Jackknife UCL | 4.861986 |
| | | Standard Bootstrap UCL | 4.749075 |
| | | Bootstrap-t UCL | 8.123554 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 13.25371 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 4.936294 |
| | | BCA Bootstrap UCL | 4.615612 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 7.902443 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 10.05557 |
| | | 99% Chebyshev (Mean, Sd) UCL | 14.28498 |

General Statistics

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|----------------------------------|------------------------------------------------------------------|----------------------------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Benzo[b]fluoranthene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 32 | Shapiro-Wilk Test Statistic | 0.456123 |
| Number of Unique Samples | 32 | Shapiro-Wilk 5% Critical Value | 0.93 |
| Minimum | 0.0764 | Data not normal at 5% significance level | |
| Maximum | 42 | | |
| Mean | 3.437622 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.41025 | Student's-t UCL | 5.883322 |
| Standard Deviation | 8.159728 | | |
| Variance | 66.58116 | Gamma Distribution Test | |
| Coefficient of Variation | 2.373655 | A-D Test Statistic | 2.735509 |
| Skewness | 3.948919 | A-D 5% Critical Value | 0.830402 |
| | | K-S Test Statistic | 0.270637 |
| Gamma Statistics | | K-S 5% Critical Value | 0.166315 |
| k hat | 0.409987 | Data do not follow gamma distribution at 5% significance level | |
| k star (bias corrected) | 0.392384 | | |
| Theta hat | 8.384705 | | |
| Theta star | 8.760856 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 26.23918 | Approximate Gamma UCL | 5.874201 |
| nu star | 25.11259 | Adjusted Gamma UCL | 6.050089 |
| Approx. Chi Square Value (.05) | 14.69606 | | |
| Adjusted Level of Significance | 0.0416 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 14.26881 | Shapiro-Wilk Test Statistic | 0.881002 |
| | | Shapiro-Wilk 5% Critical Value | 0.93 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -2.571773 | | |
| Maximum of log data | 3.73767 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.363884 | 95% H-UCL | 8.642542 |
| Standard Deviation of log data | 1.718875 | 95% Chebyshev (MVUE) UCL | 7.536574 |
| Variance of log data | 2.95453 | 97.5% Chebyshev (MVUE) UCL | 9.60836 |
| | | 99% Chebyshev (MVUE) UCL | 13.67798 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 5.810241 |
| | | Adj-CLT UCL (Adjusted for skewness) | 6.886171 |
| | | Mod-t UCL (Adjusted for skewness) | 6.051145 |
| | | Jackknife UCL | 5.883322 |
| | | Standard Bootstrap UCL | 5.781678 |
| | | Bootstrap-t UCL | 11.20625 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 15.7768 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 6.143041 |
| | | BCA Bootstrap UCL | 5.566078 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 9.725114 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 12.44572 |
| | | 99% Chebyshev (Mean, Sd) UCL | 17.78982 |

General Statistics

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|----------------------------------|-----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Benzo[k]fluoranthene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 32 | Shapiro-Wilk Test Statistic | 0.470257 |
| Number of Unique Samples | 31 | Shapiro-Wilk 5% Critical Value | 0.93 |
| Minimum | 0.062 | Data not normal at 5% significance level | |
| Maximum | 27 | | |
| Mean | 2.272734 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.1925 | Student's-t UCL | 3.782806 |
| Standard Deviation | 5.038138 | | |
| Variance | 25.38283 | Gamma Distribution Test | |
| Coefficient of Variation | 2.216774 | A-D Test Statistic | 2.872273 |
| Skewness | 4.14928 | A-D 5% Critical Value | 0.817838 |
| | | K-S Test Statistic | 0.283658 |
| Gamma Statistics | | K-S 5% Critical Value | 0.165091 |
| k hat | 0.466487 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.443587 | at 5% significance level | |
| Theta hat | 4.872018 | | |
| Theta star | 5.123532 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 29.85519 | Approximate Gamma UCL | 3.744809 |
| nu star | 28.3896 | Adjusted Gamma UCL | 3.848948 |
| Approx. Chi Square Value (.05) | 17.22972 | | |
| Adjusted Level of Significance | 0.0416 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 16.76354 | Shapiro-Wilk Test Statistic | 0.854175 |
| | | Shapiro-Wilk 5% Critical Value | 0.93 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -2.780621 | | |
| Maximum of log data | 3.295837 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.555485 | 95% H-UCL | 5.272138 |
| Standard Deviation of log data | 1.606194 | 95% Chebyshev (MVUE) UCL | 4.986339 |
| Variance of log data | 2.57986 | 97.5% Chebyshev (MVUE) UCL | 6.314399 |
| | | 99% Chebyshev (MVUE) UCL | 8.923116 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 3.737683 |
| | | Adj-CLT UCL (Adjusted for skewness) | 4.435711 |
| | | Mod-t UCL (Adjusted for skewness) | 3.891685 |
| | | Jackknife UCL | 3.782806 |
| | | Standard Bootstrap UCL | 3.745443 |
| | | Bootstrap-t UCL | 6.144092 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 9.202434 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 3.932031 |
| | | BCA Bootstrap UCL | 3.635172 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 6.15488 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 7.834688 |
| | | 99% Chebyshev (Mean, Sd) UCL | 11.13435 |

General Statistics

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|----------------------------------|-----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEPIHH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Dibenz[a,h]anthracene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 30 | Shapiro-Wilk Test Statistic | 0.640892 |
| Number of Unique Samples | 29 | Shapiro-Wilk 5% Critical Value | 0.927 |
| Minimum | 0.076 | Data not normal at 5% significance level | |
| Maximum | 7.4 | | |
| Mean | 1.385933 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.191 | Student's-t UCL | 2.036318 |
| Standard Deviation | 2.096551 | | |
| Variance | 4.395524 | Gamma Distribution Test | |
| Coefficient of Variation | 1.512735 | A-D Test Statistic | 3.42392 |
| Skewness | 1.74403 | A-D 5% Critical Value | 0.800863 |
| | | K-S Test Statistic | 0.320372 |
| Gamma Statistics | | K-S 5% Critical Value | 0.168059 |
| k hat | 0.596992 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.559515 | at 5% significance level | |
| Theta hat | 2.321529 | | |
| Theta star | 2.477027 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 35.8195 | Approximate Gamma UCL | 2.182365 |
| nu star | 33.57089 | Adjusted Gamma UCL | 2.241632 |
| Approx. Chi Square Value (.05) | 21.31954 | | |
| Adjusted Level of Significance | 0.041 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 20.75587 | Shapiro-Wilk Test Statistic | 0.786482 |
| | | Shapiro-Wilk 5% Critical Value | 0.927 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -2.577022 | | |
| Maximum of log data | 2.00148 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.709377 | 95% H-UCL | 2.910153 |
| Standard Deviation of log data | 1.412167 | 95% Chebyshev (MVUE) UCL | 3.007446 |
| Variance of log data | 1.994217 | 97.5% Chebyshev (MVUE) UCL | 3.766 |
| | | 99% Chebyshev (MVUE) UCL | 5.256031 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 2.015544 |
| | | Adj-CLT UCL (Adjusted for skewness) | 2.145776 |
| | | Mod-t UCL (Adjusted for skewness) | 2.056632 |
| | | Jackknife UCL | 2.036318 |
| | | Standard Bootstrap UCL | 2.003786 |
| | | Bootstrap-t UCL | 2.286382 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 2.061986 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 2.062117 |
| | | BCA Bootstrap UCL | 1.9173 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 3.054415 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 3.776369 |
| | | 99% Chebyshev (Mean, Sd) UCL | 5.194506 |

General Statistics

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|----------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Indeno[1,2,3-cd]pyrene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 30 | Shapiro-Wilk Test Statistic | 0.538592 |
| Number of Unique Samples | 29 | Shapiro-Wilk 5% Critical Value | 0.927 |
| Minimum | 0.0556 | Data not normal at 5% significance level | |
| Maximum | 22 | | |
| Mean | 2.284553 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.2565 | Student's-t UCL | 3.595346 |
| Standard Deviation | 4.22541 | | |
| Variance | 17.85409 | Gamma Distribution Test | |
| Coefficient of Variation | 1.849556 | A-D Test Statistic | 2.401239 |
| Skewness | 3.742853 | A-D 5% Critical Value | 0.808773 |
| | | K-S Test Statistic | 0.26048 |
| Gamma Statistics | | K-S 5% Critical Value | 0.169129 |
| k hat | 0.504413 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.476194 | at 5% significance level | |
| Theta hat | 4.52913 | | |
| Theta star | 4.797524 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 30.2648 | Approximate Gamma UCL | 3.75744 |
| nu star | 28.57165 | Adjusted Gamma UCL | 3.869753 |
| Approx. Chi Square Value (.05) | 17.37179 | | |
| Adjusted Level of Significance | 0.041 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 16.86761 | Shapiro-Wilk Test Statistic | 0.851065 |
| | | Shapiro-Wilk 5% Critical Value | 0.927 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -2.889572 | | |
| Maximum of log data | 3.091042 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.431364 | 95% H-UCL | 6.713704 |
| Standard Deviation of log data | 1.634453 | 95% Chebyshev (MVUE) UCL | 6.020059 |
| Variance of log data | 2.671437 | 97.5% Chebyshev (MVUE) UCL | 7.651315 |
| | | 99% Chebyshev (MVUE) UCL | 10.8556 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 3.553477 |
| | | Adj-CLT UCL (Adjusted for skewness) | 4.116765 |
| | | Mod-t UCL (Adjusted for skewness) | 3.683207 |
| | | Jackknife UCL | 3.595346 |
| | | Standard Bootstrap UCL | 3.544365 |
| | | Bootstrap-t UCL | 4.874209 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 8.613512 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 3.634633 |
| | | BCA Bootstrap UCL | 3.510023 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 5.647229 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 7.102261 |
| | | 99% Chebyshev (Mean, Sd) UCL | 9.960391 |

General Statistics

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|----------------------------------|-----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEPIHH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Naphthalene | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 31 | Shapiro-Wilk Test Statistic | 0.646747 |
| Number of Unique Samples | 30 | Shapiro-Wilk 5% Critical Value | 0.929 |
| Minimum | 0.009 | Data not normal at 5% significance level | |
| Maximum | 7.9 | | |
| Mean | 1.383 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.1855 | Student's-t UCL | 2.036444 |
| Standard Deviation | 2.143584 | | |
| Variance | 4.594952 | Gamma Distribution Test | |
| Coefficient of Variation | 1.549952 | A-D Test Statistic | 3.071622 |
| Skewness | 1.783361 | A-D 5% Critical Value | 0.807977 |
| | | K-S Test Statistic | 0.331553 |
| Gamma Statistics | | K-S 5% Critical Value | 0.166542 |
| k hat | 0.520355 | Data do not follow gamma distribution | |
| k star (bias corrected) | 0.491503 | at 5% significance level | |
| Theta hat | 2.657801 | | |
| Theta star | 2.813816 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 32.26201 | Approximate Gamma UCL | 2.234217 |
| nu star | 30.47321 | Adjusted Gamma UCL | 2.296118 |
| Approx. Chi Square Value (.05) | 18.86318 | | |
| Adjusted Level of Significance | 0.0413 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 18.35465 | Shapiro-Wilk Test Statistic | 0.847563 |
| | | Shapiro-Wilk 5% Critical Value | 0.929 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -4.710531 | | |
| Maximum of log data | 2.066863 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -0.888918 | 95% H-UCL | 4.39273 |
| Standard Deviation of log data | 1.656068 | 95% Chebyshev (MVUE) UCL | 3.954843 |
| Variance of log data | 2.742561 | 97.5% Chebyshev (MVUE) UCL | 5.02821 |
| | | 99% Chebyshev (MVUE) UCL | 7.13663 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 2.016267 |
| | | Adj-CLT UCL (Adjusted for skewness) | 2.148032 |
| | | Mod-t UCL (Adjusted for skewness) | 2.056996 |
| | | Jackknife UCL | 2.036444 |
| | | Standard Bootstrap UCL | 2.012611 |
| | | Bootstrap-t UCL | 2.261454 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 2.103187 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 2.025113 |
| | | BCA Bootstrap UCL | 1.939 |
| Use 99% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 3.061172 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 3.787318 |
| | | 99% Chebyshev (Mean, Sd) UCL | 5.213692 |

General Statistics

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|----------------------------------|---------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMYSAEPHH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Aroclor-1260 | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 26 | Shapiro-Wilk Test Statistic | 0.398244 |
| Number of Unique Samples | 22 | Shapiro-Wilk 5% Critical Value | 0.92 |
| Minimum | 0.0206 | Data not normal at 5% significance level | |
| Maximum | 0.388 | | |
| Mean | 0.05036 | 95% UCL (Assuming Normal Distribution) | |
| Median | 0.0221 | Student's-t UCL | 0.078794 |
| Standard Deviation | 0.08488 | | |
| Variance | 0.007205 | Gamma Distribution Test | |
| Coefficient of Variation | 1.685481 | A-D Test Statistic | 6.517969 |
| Skewness | 3.40808 | A-D 5% Critical Value | 0.770775 |
| | | K-S Test Statistic | 0.456054 |
| Gamma Statistics | | K-S 5% Critical Value | 0.175879 |
| k hat | 1.112219 | Data do not follow gamma distribution | |
| k star (bias corrected) | 1.009527 | at 5% significance level | |
| Theta hat | 0.045279 | | |
| Theta star | 0.049884 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 57.83537 | Approximate Gamma UCL | 0.071742 |
| nu star | 52.49539 | Adjusted Gamma UCL | 0.073469 |
| Approx.Chi Square Value (.05) | 36.84959 | | |
| Adjusted Level of Significance | 0.0398 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 35.98325 | Shapiro-Wilk Test Statistic | 0.507113 |
| | | Shapiro-Wilk 5% Critical Value | 0.92 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -3.882464 | | |
| Maximum of log data | -0.94675 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | -3.501302 | 95% H-UCL | 0.058501 |
| Standard Deviation of log data | 0.787234 | 95% Chebyshev (MVUE) UCL | 0.070318 |
| Variance of log data | 0.619737 | 97.5% Chebyshev (MVUE) UCL | 0.083222 |
| | | 99% Chebyshev (MVUE) UCL | 0.10857 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 0.07774 |
| | | Adj-CLT UCL (Adjusted for skewness) | 0.089629 |
| | | Mod-t UCL (Adjusted for skewness) | 0.080648 |
| | | Jackknife UCL | 0.078794 |
| | | Standard Bootstrap UCL | 0.077249 |
| | | Bootstrap-t UCL | 0.173627 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 0.187135 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 0.078577 |
| | | BCA Bootstrap UCL | 0.101596 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 0.122919 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 0.154316 |
| | | 99% Chebyshev (Mean, Sd) UCL | 0.215989 |

General Statistics

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|---------------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Aluminum | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 29 | Shapiro-Wilk Test Statistic | 0.822491 |
| Number of Unique Samples | 29 | Shapiro-Wilk 5% Critical Value | 0.926 |
| Minimum | 4080 | Data not normal at 5% significance level | |
| Maximum | 17400 | | |
| Mean | 7445.862 | 95% UCL (Assuming Normal Distribution) | |
| Median | 7310 | Student's-t UCL | 8236.246 |
| Standard Deviation | 2502.068 | | |
| Variance | 6260347 | Gamma Distribution Test | |
| Coefficient of Variation | 0.336035 | A-D Test Statistic | 0.48017 |
| Skewness | 2.182592 | A-D 5% Critical Value | 0.745502 |
| | | K-S Test Statistic | 0.110931 |
| Gamma Statistics | | K-S 5% Critical Value | 0.16245 |
| k hat | 11.23757 | Data follow gamma distribution | |
| k star (bias corrected) | 10.09805 | at 5% significance level | |
| Theta hat | 662.5866 | | |
| Theta star | 737.3565 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 651.7789 | Approximate Gamma UCL | 8219.829 |
| nu star | 585.6869 | Adjusted Gamma UCL | 8268.561 |
| Approx. Chi Square Value (.05) | 530.5395 | | |
| Adjusted Level of Significance | 0.0407 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 527.4127 | Shapiro-Wilk Test Statistic | 0.950005 |
| | | Shapiro-Wilk 5% Critical Value | 0.926 |
| Log-transformed Statistics | | Data are lognormal at 5% significance level | |
| Minimum of log data | 8.313852 | | |
| Maximum of log data | 9.764225 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 8.870261 | 95% H-UCL | 8234.497 |
| Standard Deviation of log data | 0.298096 | 95% Chebyshev (MVUE) UCL | 9249.894 |
| Variance of log data | 0.088861 | 97.5% Chebyshev (MVUE) UCL | 10037.95 |
| | | 99% Chebyshev (MVUE) UCL | 11585.94 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 8210.098 |
| | | Adj-CLT UCL (Adjusted for skewness) | 8411.31 |
| | | Mod-t UCL (Adjusted for skewness) | 8267.631 |
| | | Jackknife UCL | 8236.246 |
| | | Standard Bootstrap UCL | 8185.963 |
| | | Bootstrap-t UCL | 8545.588 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 10129.17 |
| Data follow gamma distribution (0.05) | | Percentile Bootstrap UCL | 8273.103 |
| | | BCA Bootstrap UCL | 8802.414 |
| Use Approximate Gamma UCL | | 95% Chebyshev (Mean, Sd) UCL | 9471.104 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 10347.43 |
| | | 99% Chebyshev (Mean, Sd) UCL | 12068.8 |

General Statistics

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|----------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Antimony | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 28 | Shapiro-Wilk Test Statistic | 0.736734 |
| Number of Unique Samples | 20 | Shapiro-Wilk 5% Critical Value | 0.924 |
| Minimum | 0.2 | Data not normal at 5% significance level | |
| Maximum | 11.4 | | |
| Mean | 4.797107 | 95% UCL (Assuming Normal Distribution) | |
| Median | 5.4 | Student's-t UCL | 5.509463 |
| Standard Deviation | 2.213032 | | |
| Variance | 4.897509 | Gamma Distribution Test | |
| Coefficient of Variation | 0.461326 | A-D Test Statistic | 4.918859 |
| Skewness | -0.116932 | A-D 5% Critical Value | 0.757418 |
| | | K-S Test Statistic | 0.380798 |
| Gamma Statistics | | K-S 5% Critical Value | 0.167434 |
| k hat | 2.128478 | Data do not follow gamma distribution | |
| k star (bias corrected) | 1.924236 | at 5% significance level | |
| Theta hat | 2.253774 | | |
| Theta star | 2.492993 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 119.1948 | Approximate Gamma UCL | 6.096156 |
| nu star | 107.7572 | Adjusted Gamma UCL | 6.188033 |
| Approx. Chi Square Value (.05) | 84.79491 | | |
| Adjusted Level of Significance | 0.0404 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 83.53591 | Shapiro-Wilk Test Statistic | 0.588039 |
| | | Shapiro-Wilk 5% Critical Value | 0.924 |
| Log-transformed Statistics | | Data not lognormal at 5% significance level | |
| Minimum of log data | -1.609438 | | |
| Maximum of log data | 2.433613 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 1.31508 | 95% H-UCL | 9.46186 |
| Standard Deviation of log data | 0.974974 | 95% Chebyshev (MVUE) UCL | 11.19978 |
| Variance of log data | 0.950575 | 97.5% Chebyshev (MVUE) UCL | 13.51469 |
| | | 99% Chebyshev (MVUE) UCL | 18.06187 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 5.485024 |
| | | Adj-CLT UCL (Adjusted for skewness) | 5.475149 |
| | | Mod-t UCL (Adjusted for skewness) | 5.507922 |
| | | Jackknife UCL | 5.509463 |
| | | Standard Bootstrap UCL | 5.465071 |
| | | Bootstrap-t UCL | 5.480458 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 5.563155 |
| Data are Non-parametric (0.05) | | Percentile Bootstrap UCL | 5.457428 |
| | | BCA Bootstrap UCL | 5.316036 |
| Use 95% Chebyshev (Mean, Sd) UCL | | 95% Chebyshev (Mean, Sd) UCL | 6.620102 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 7.408913 |
| | | 99% Chebyshev (Mean, Sd) UCL | 8.95838 |

General Statistics

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|---------------------------------------|-----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVTARMY\SAEP\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Arsenic | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 29 | Shapiro-Wilk Test Statistic | 0.767492 |
| Number of Unique Samples | 29 | Shapiro-Wilk 5% Critical Value | 0.926 |
| Minimum | 1.95 | Data not normal at 5% significance level | |
| Maximum | 15.2 | | |
| Mean | 4.737931 | 95% UCL (Assuming Normal Distribution) | |
| Median | 4.01 | Student's-t UCL | 5.548115 |
| Standard Deviation | 2.564749 | | |
| Variance | 6.577938 | Gamma Distribution Test | |
| Coefficient of Variation | 0.541323 | A-D Test Statistic | 0.611565 |
| Skewness | 2.566766 | A-D 5% Critical Value | 0.747527 |
| | | K-S Test Statistic | 0.122441 |
| Gamma Statistics | | K-S 5% Critical Value | 0.163019 |
| k hat | 5.009237 | Data follow gamma distribution | |
| k star (bias corrected) | 4.514028 | at 5% significance level | |
| Theta hat | 0.945839 | | |
| Theta star | 1.049602 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 290.5357 | Approximate Gamma UCL | 5.504863 |
| nu star | 261.8136 | Adjusted Gamma UCL | 5.554604 |
| Approx. Chi Square Value (.05) | 225.3381 | | |
| Adjusted Level of Significance | 0.0407 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 223.3202 | Shapiro-Wilk Test Statistic | 0.960146 |
| | | Shapiro-Wilk 5% Critical Value | 0.926 |
| Log-transformed Statistics | | Data are lognormal at 5% significance level | |
| Minimum of log data | 0.667829 | | |
| Maximum of log data | 2.721295 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 1.452477 | 95% H-UCL | 5.513784 |
| Standard Deviation of log data | 0.440524 | 95% Chebyshev (MVUE) UCL | 6.422357 |
| Variance of log data | 0.194061 | 97.5% Chebyshev (MVUE) UCL | 7.171059 |
| | | 99% Chebyshev (MVUE) UCL | 8.641738 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 5.521312 |
| | | Adj-CLT UCL (Adjusted for skewness) | 5.763869 |
| | | Mod-t UCL (Adjusted for skewness) | 5.585949 |
| | | Jackknife UCL | 5.548115 |
| | | Standard Bootstrap UCL | 5.502896 |
| | | Bootstrap-t UCL | 5.943424 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 8.735068 |
| Data follow gamma distribution (0.05) | | Percentile Bootstrap UCL | 5.571034 |
| | | BCA Bootstrap UCL | 6.152414 |
| Use Approximate Gamma UCL | | 95% Chebyshev (Mean, Sd) UCL | 6.813909 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 7.712186 |
| | | 99% Chebyshev (Mean, Sd) UCL | 9.476678 |

General Statistics

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|------------------------------------|------------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMYSAEPI\HH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Chromium | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 29 | Shapiro-Wilk Test Statistic | 0.728284 |
| Number of Unique Samples | 26 | Shapiro-Wilk 5% Critical Value | 0.926 |
| Minimum | 6.23 | Data not normal at 5% significance level | |
| Maximum | 60.4 | | |
| Mean | 16.50207 | 95% UCL (Assuming Normal Distribution) | |
| Median | 11.9 | Student's-t UCL | 20.13766 |
| Standard Deviation | 11.50896 | | |
| Variance | 132.4562 | Gamma Distribution Test | |
| Coefficient of Variation | 0.697425 | A-D Test Statistic | 1.097133 |
| Skewness | 2.462037 | A-D 5% Critical Value | 0.751978 |
| Gamma Statistics | | K-S Test Statistic | 0.163529 |
| | | K-S 5% Critical Value | 0.163747 |
| k hat | 3.310352 | Data follow approximate gamma distribution | |
| k star (bias corrected) | 2.99089 | at 5% significance level | |
| Theta hat | 4.984989 | | |
| Theta star | 5.517444 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 192.0004 | Approximate Gamma UCL | 19.87856 |
| nu star | 173.4716 | Adjusted Gamma UCL | 20.10217 |
| Approx. Chi Square Value (.05) | 144.0065 | | |
| Adjusted Level of Significance | 0.0407 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 142.4046 | Shapiro-Wilk Test Statistic | 0.940837 |
| | | Shapiro-Wilk 5% Critical Value | 0.926 |
| Log-transformed Statistics | | Data are lognormal at 5% significance level | |
| Minimum of log data | 1.829376 | | |
| Maximum of log data | 4.100989 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 2.644907 | 95% H-UCL | 19.79214 |
| Standard Deviation of log data | 0.533201 | 95% Chebyshev (MVUE) UCL | 23.45295 |
| Variance of log data | 0.284304 | 97.5% Chebyshev (MVUE) UCL | 26.61562 |
| | | 99% Chebyshev (MVUE) UCL | 32.82809 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 20.01738 |
| | | Adj-CLT UCL (Adjusted for skewness) | 21.06142 |
| | | Mod-t UCL (Adjusted for skewness) | 20.30051 |
| | | Jackknife UCL | 20.13766 |
| | | Standard Bootstrap UCL | 19.92174 |
| | | Bootstrap-t UCL | 22.6183 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 24.63758 |
| Assuming gamma distribution (0.05) | | Percentile Bootstrap UCL | 20.1969 |
| | | BCA Bootstrap UCL | 22.30862 |
| Use Approximate Gamma UCL | | 95% Chebyshev (Mean, Sd) UCL | 25.81774 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 29.84863 |
| | | 99% Chebyshev (Mean, Sd) UCL | 37.76655 |

General Statistics

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|---------------------------------------|-----------------------------------------------------------------|---------------------------------------------|----------|
| Data File | P:\W9-GVT\ARMYSAEPIHH 2004 REV\ProUCL\SS-SoPkgLot-InputFile.xls | | |
| Variable: | Manganese | | |
| Raw Statistics | | Normal Distribution Test | |
| Number of Valid Samples | 29 | Shapiro-Wilk Test Statistic | 0.814767 |
| Number of Unique Samples | 26 | Shapiro-Wilk 5% Critical Value | 0.926 |
| Minimum | 102 | Data not normal at 5% significance level | |
| Maximum | 518 | | |
| Mean | 199.4828 | 95% UCL (Assuming Normal Distribution) | |
| Median | 171 | Student's-t UCL | 226.6713 |
| Standard Deviation | 86.06917 | | |
| Variance | 7407.901 | Gamma Distribution Test | |
| Coefficient of Variation | 0.431462 | A-D Test Statistic | 0.727895 |
| Skewness | 2.08026 | A-D 5% Critical Value | 0.746687 |
| | | K-S Test Statistic | 0.135008 |
| Gamma Statistics | | K-S 5% Critical Value | 0.162769 |
| k hat | 7.279104 | Data follow gamma distribution | |
| k star (bias corrected) | 6.549082 | at 5% significance level | |
| Theta hat | 27.40485 | | |
| Theta star | 30.45965 | 95% UCLs (Assuming Gamma Distribution) | |
| nu hat | 422.1881 | Approximate Gamma UCL | 225.7386 |
| nu star | 379.8468 | Adjusted Gamma UCL | 227.4156 |
| Approx.Chi Square Value (.05) | 335.6665 | | |
| Adjusted Level of Significance | 0.0407 | Lognormal Distribution Test | |
| Adjusted Chi Square Value | 333.1911 | Shapiro-Wilk Test Statistic | 0.952787 |
| | | Shapiro-Wilk 5% Critical Value | 0.926 |
| Log-transformed Statistics | | Data are lognormal at 5% significance level | |
| Minimum of log data | 4.624973 | | |
| Maximum of log data | 6.249975 | 95% UCLs (Assuming Lognormal Distribution) | |
| Mean of log data | 5.225468 | 95% H-UCL | 225.6961 |
| Standard Deviation of log data | 0.365084 | 95% Chebyshev (MVUE) UCL | 258.2702 |
| Variance of log data | 0.133286 | 97.5% Chebyshev (MVUE) UCL | 284.2283 |
| | | 99% Chebyshev (MVUE) UCL | 335.2181 |
| | | 95% Non-parametric UCLs | |
| | | CLT UCL | 225.7719 |
| | | Adj-CLT UCL (Adjusted for skewness) | 232.3689 |
| | | Mod-t UCL (Adjusted for skewness) | 227.7003 |
| | | Jackknife UCL | 226.6713 |
| | | Standard Bootstrap UCL | 225.8118 |
| | | Bootstrap-t UCL | 237.8779 |
| RECOMMENDATION | | Hall's Bootstrap UCL | 249.7294 |
| Data follow gamma distribution (0.05) | | Percentile Bootstrap UCL | 225.931 |
| | | BCA Bootstrap UCL | 243.2414 |
| Use Approximate Gamma UCL | | 95% Chebyshev (Mean, Sd) UCL | 269.1495 |
| | | 97.5% Chebyshev (Mean, Sd) UCL | 299.2943 |
| | | 99% Chebyshev (Mean, Sd) UCL | 358.508 |